EDISON ELECTRIC INSTITUTE BULLETIN

SALES CONFERENCE NUMBER

VOLUME II APRIL 1934 NUMBER 4

STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY

Compiled Monthly by the Edison Electric Institute—Covers 100% of the Industry

DURING THE MONTH OF FEBRUARY

	1934	1933	%
Kilowatt-hours Generated* (net)			
By Fuel	4,441,940,000	3,369,970,000	+31.8
By Water Power	2,069,633,000	2,474,727,000	−16.4
Total kilowatt-hours generated	6,511,573,000	5,844,697,000	+11.4
Additions to Supply			
Energy purchased from other sources	200,002,000	127,817,000	+56.5
Net International Imports	73,458,000	29,847,000	+146.1
Total	273,460,000	157,664,000	+73.4
Deductions from Supply			
Energy used in electric railways departments	65,101,000	65,251,000	− 0.2
Energy used in electric and other departments	111,576,000	101,847,000	+ 9.6
Total	176,677,000	167,098,000	+ 5.7
Total Energy for Distribution	**6,608,356,000**	**5,835,263,000**	**+13.2**
Energy Lost in Transmssion, Distribution, etc.	842,440,000	809,046,000	+ 4.1
Kilowatt-hours Sold to Ultimate Consumers	**5,765,916,000**	**5,026,217,000**	**+14.7**
Sales to Ultimate Consumers (kw-hrs)			
Domestic Service	1,122,776,000	1,073,758,000	+ 4.6
Commercial—Small Light and Power (Retail)	1,085,323,000	1,043,580,000	+ 4.0
Commercial—Large Light and Power (Wholesale)	2,831,491,000	2,247,548,000	+26.0
Municipal Street Lighting	201,970,000	210,909,000	− 4.2
Railroads—Street and Interurban	388,024,000	348,115,000	+11.5
Railroads—Electrified Steam	61,594,000	49,622,000	+24.1
Municipal and Miscellaneous	74,738,000	52,685,000	+41.9
Total Sales to Ultimate Consumers	5,765,916,000	5,026,217,000	+14.7
Total Revenue from Ultimate Consumers	$154,831,700	$149,768,400	+ 3.4

DURING TWELVE MONTHS ENDING FEBRUARY 28th

Kilowatt-hours Generated* (net)			
By Fuel	49,123,308,000	44,926,131,000	+ 9.3
By Water Power	31,131,464,000	30,639,824,000	+ 1.6
Total Kilowatt-hours Generated	80,254,772,000	75,565,955,000	+ 6.2
Purchased Energy (net)	3,091,036,000	2,726,826,000	+13.4
Energy Used in Electric Railway and Other Departments	1,912,953,000	2,040,336,000	− 6.2
Total Energy for Distribution	**81,432,855,000**	**76,252,445,000**	**+ 6.8**
Energy Lost in Transmission, Distribution, etc.	14,401,305,000	13,599,391,000	+ 5.9
Kilowatt-hours Sold to Ultimate Consumers	**67,031,550,000**	**62,653,054,000**	**+ 7.0**
Total Revenue from Ultimate Consumers	$1,780,270,000	$1,803,448,300	− 1.3
Important Factors			
Per cent of energy generated by waterpower	38.8%	40.5%	
Average pounds of coal per kilowatt-hour	1.45#	1.49#	
Domestic Service (Residential Use)			
Average Annual Consumption per Customer (kw-hr)	607	598	+ 1.5
Average Revenue per kw-hr (Cents)	5.46¢	5.58¢	− 2.2
Average Monthly Bill per Domestic Customer	$2.76	$2.78	− 0.7

BASIC INFORMATION AS OF FEBRUARY 28th

Generating Capacity (kw)—Steam	23,986,500	24,159,000	
—Water Power	9,007,100	8,968,600	
—Internal Combustion	461,900	457,400	
Total Generating Capacity in Kilowatts	33,455,500	33,585,000	
Number of Customers			
Farms in Eastern Area (Included with Domestic)	(504,957)	(502,768)	
Farms in Western Area (Included with Com'l—Large)	(205,423)	(203,225)	
Domestic Service	20,067,553	19,763,384	
Commercial—Small Light and Power	3,683,964	3,650,962	
Commercial—Large Light and Power	521,696	539,995	
All Other Ultimate Consumers	67,220	70,034	
Total Ultimate Consumers	24,340,433	24,024,375	

*By courtesy of the U. S. Geological Survey with deductions for certain plants not considered Electric Light and Power Enterprises.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume II APRIL, 1934 No. 4

THE GENERAL SALES CONFERENCE AT CHICAGO

"Sell Our Way Out"—The Prescribed Remedy for Depleted Revenues

"Sell Our Way Out"—That has been the prescribed remedy for depleted revenues from all classes of electric utility business. We cannot make the wheels of industry hum, but when they do turn, we can see to it that the motive power be central station service, and the heating and motor driven applications be complete. This job is for technically trained men with keen sales ability. It is a *selling* job.

The predicament of office building operators, and the depressed sales of merchants, created a thrift complex that cut deep into our returns on commercial business. But with the turning tide of hope, and the revival of trade, there are new prospects and opportunities.

What havoc has been wrought in the maintenance of good lighting standards in our retail stores! What myriads of 60-watt lamps have replaced the 100-watt size, and 25 watts replaced 50 watts. Does the sign look well enough with the smaller wattage lamps? "They will do," says the merchant, or "I cannot afford to burn my sign." How many office boys have been charged to keep *unnecessary* lights turned out. We have witnessed the startling rise in the expenditures of municipalities in all directions, but a *saving* in their street lighting. The safety of the public has been treated as a luxury, and life has been imperiled with poorly lighted streets. Highways have been darkened.

C. E. GREENWOOD
Commercial Director, Edison Electric Institute

"Turn out those lights in all public buildings," cries Uncle Sam, in department order naughty-naught.

And when we come to the home—Electrical Thrift has been the watchword of thousands of homemakers. They can do without the refrigerator in winter, or they leave the toaster out of service on the pantry shelf; the iron may be used sparingly, the convenience of regular cooking on the electric range must be sacrificed; yes, the radio can continue to furnish its daily entertainment, but let Johnny and Peggy study under the same lamp and put smaller bulbs in it. "Let's save money. Electricity is expensive."

And so it goes with the New Deal in electrical use. Such reactions have gained momentum because the opposing forces of Sales and Promotion, adequate to cope with an unusual psychological situation, have been lacking.

There is but one method of winning. It is by persistent, vigorous, effective, voluminous advertising and sales promotion coordinated on all fronts, and recognizing no defeat. *Too many utilities send out only a squad of salesmen to meet a battalion of kill-joys in the use of electric service.*

There is a sales message for all these handicaps that will help recover this lost revenue. Has the utility sufficient couriers to deliver.

GEO. E. WHITWELL
Chairman, Sales Committee, Edison Electric Institute

With the foregoing thought in mind, it was fitting that commercial men should be called to rally, and consider, in a General Sales Conference held at the Edgewater Beach Hotel, Chicago, on March 14 and 15, under the auspices of the Sales Committee of the Edison Electric Institute. They came two hundred strong, and George E. Whitwell, chairman of the Sales Committee, and presiding officer of the Conference, has recorded these meeting as a success richly deserving repetition at a later date.

"Load Building Prospects Ahead of Us" was the opening subject, and this was handled to the Queen's taste by Mr. Whitwell, who is vice-president, Philadelphia Electric Company, Philadelphia, and by R. E. Fisher, vice-president, Pacific Gas & Electric Company, San Francisco. The sales plan of both companies are broad and indicative of intensive promotion on all fronts. Delving into the relation of rates to business building,

F. A. Newton of Commonwealth & Southern Corp., New York, and chairman of the Rate Research Committee, Edison Electric Institute, informed the Conference in a highly interesting and adequate presentation about the new uniform rate structures of the Southern companies in the Commonwealth & Southern group. Then we heard from the top man of the National Electric Manufacturers Association, J. S. Tritle, also vice-president of the Westinghouse Electric & Manufacturing Company, who made an effective approach to "Manufacturer Problems of Common Interest."

It was fitting that at the first session of the Conference, E. W. Lloyd, vice-president, Commonwealth Edison Company, Chicago, one of the deans among Commercial Executives, should digress from the direct business of the Conference to discuss "The Utilities Part in the Century of Progress." Mr. Lloyd is chairman of the Electrical Committee of the Exposition and has been an indefatigable worker in bringing about participation of utility companies in the exhibit, and carrying plans into execution. Mr. Lloyd outlined the achievements of last year's exhibit and asked for continuation of utility support with the second opening of the Century of Progress. Incidentally Mr. Lloyd had prepared in the general meeting room an exhibit of sales plans, and of promotional literature of the Commonwealth Edison Co.

The afternoon session opened with a discussion of power. W. H. Sammis, Commonwealth & Southern Corporation, New York, broke ground with a forceful presentation on "Some Immediate Sales Possibilities." He was followed by H. C. Thuerk of the Utility Management Corporation, New York, who under the caption "Prescribing for Critical Power Cases" unfolded most useful information in the handling of competitive power and holding present business. The all-important subject of "How Will Air Conditioning Contribute to Revenue" was presented by C. E. Michel, sales manager, Union Electric Light & Power Company, St. Louis. There can be no doubt in one's mind of the sales possibilities and methods of approach following Mr. Michel's enlightening message.

E. A. Brand, Buffalo, Niagara & Eastern Power Corporation, Buffalo, was the last speaker of the afternoon session, and unfolded a fund of valuable information on "Experimental Developments in Off-Peak Water Heating." His talk was illustrated. The Conference was shown step by step the building of the off-peak water heating equipment now being promoted in the territory of Niagara Hudson Power Corporation.

The morning session of March 15 was devoted exclusively to domestic load building subjects. One could not fail to be impressed with the outstanding accomplishments of the BETTER LIGHT, BETTER SIGHT program, after M. E. Skinner, Buffalo, Niagara & Eastern Power Corporation, made his presentation on "What Has Been Done and Can Be Done in Better Lighting." It was not only a review of achievement, but an assurance of greater expansion in this effort.

Another national program was presented by D. M. DeBard, Stone & Webster Service Corporation, New York, chairman of the Table Cookery Program Committee. The slogan of that program "Electric Table Service Saves" was a theme on which Mr. DeBard made effective presentation of the plans which aimed to revive interest in small heating and motor driven devices.

It was fitting that the chairman of the Domestic Appliance Section of NEMA, C. E. Swartzbaugh, who is president of the manufacturing company bearing his name, should also discuss the Table Cookery Program from the manufacturer's viewpoint. That section of NEMA is carrying forward jointly with the Edison Electric Institute in this activity. As will be noted in Mr. Swartzbaugh's address, he also made clear his position on utility merchandising.

Mr. Milan V. Ayres, analyst of the National Association of Finance Companies, Chicago, cited interesting statistics in connection with the financing of appliance sales. The last speaker was P. L. Miles, chairman of the Range Division of NEMA who sent out a vigorous message of the opportunities lying ahead for the promotion of electric cookery, and ways and means of tackling this major sales problem in an effective and comprehensive manner.

The Sales Committee is appreciative of the willingness of the Editor of the BULLETIN to devote the greater portion of this issue to the excellent papers presented. We regret that those of Messrs. E. W. Lloyd, Milan V. Ayres and P. L. Miles were not available for inclusion.

Most of the contents of Mr. Whitwell's address were printed in the March issue of the BULLETIN and therefore it does not appear here.

At the close of the Conference, Chairman George E. Whitwell held a luncheon meeting of the Sales Committee which carried through the afternoon. The minutes of that meeting reveal that a real service is being rendered, and important accomplishment recorded by every subcommittee.

Among the more important plans for a future activity is the expansion of the BETTER LIGHT, BETTER SIGHT program for which a special appropriation has been approved; the publication of an exhaustive study of air conditioning; a proposed promotional program on water system pumping in conjunction with the pump manufacturers, and the preparation of an electric kitchen planning manual.

We are reading daily statements of leading figures in the industrial world—a Sloan of General Motors, an Atterbury of Pennsylvania Railroad—optimistic and assuring that business is permanently on the upward trend. Can we in the electric utility field not go forward with an enduring confidence that "selling our way out" is the best way to build, and to meet competition, no matter how formidable.—C. E. G.

Invalidation of Kansas Anti-Merchandising Law Upheld

The *Wall Street Journal* of April 10 carried the following statement:

> "The Supreme Court has dismissed an appeal of the State of Kansas from a lower court decision which invalidated the Kansas law prohibiting gas utility companies from selling equipment to consumers of gas."

It was not possible to obtain a transcript of the court ruling for review before the BULLETIN went to press. However, it is interesting to refer to the court ruling in 1928, Commonwealth of Pennsylvania *ex rel.* Baldridge *vs.* Philadelphia Electric Company, and extract a sentence or two which read as follows:

> "What the legislature intended to grant when it authorized the respondent to furnish light, heat and power by electricity, was something more than furnishing the customer with the end of an insulated copper wire, that he did not know how to use, or had not the appliances to use. It was intended that he should have and the company should furnish the conveniences that could be obtained by the use of the electric current."

It would appear that this long standing controversial subject is finally settled and the legality of utility merchandising established beyond doubt.—C. E. G.

LOAD BUILDING PROSPECTS ON THE PACIFIC COAST

By R. E. FISHER

Vice-President, Pacific Gas & Electric Company

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

On the Pacific Coast, as elsewhere in the United States, the paramount problem of the electrical utility industry is the sale of its product, now greatly in excess of the normal market.

This problem is a long-time continuing one, and our plans and policies should be builded with this in mind.

Our problem on the Pacific Coast is common with yours—merely in its intensity and method of solution does it differ.

Our view is to the East. It has become almost axiomatic with us on the Coast that waves of either prosperity or depression alike come from East to West; and, since the beginning of the present wave seems to indicate a return to prosperity, we are hopeful that it will soon assume tidal proportions. We have prepared our business development and sales organization to take advantage of any improvement in economic conditions, or to force from our territory as much new business as may be possible should there be no improvement in business conditions.

This is the unanimous thought of commercial and sales executives of western utilities, and to my personal knowledge every single western utility has enlarged in sales plan and expenditures of 1934 over that of 1933.

A recapitulation of the range and water heater programs of eighteen companies shows 1934 range quotas of 20,070 units, equalling $2,896,000. The water heater quotas are 11,470 units, representing a market of $842,300. Wiring materials necessary for the installation of these ranges and water heaters will be purchased to the extent of $535,000.

These figures indicate that insofar as the electric utilities are concerned the market for the supplies of the electrical wholesaler and manufacturer during 1934 will be materially improved over that which existed in 1933.

To the already existing alarming surplus of electric power on the Pacific Coast is now being added the proposed output of Hoover Dam, which makes available something on the order of 5 billion kwhr, or 50 per cent of the present capacity of all California electrical utilities.

MR. FISHER

The methods and plans, old and new, which the Pacific Coast proposes to employ in the disposal of this output are the prime consideration of my appearance before you today.

Taking as typical for the Pacific Coast the business development program of the Pacific Gas & Electric Company because of its central location on the Coast and because of my greater familiarity with it, I ask your indulgence for this reference.

In presenting our problem and method of solution, there are certain characteristics in our situation that should be given as a background before proceeding to the detail of the plan.

As a whole, we do not serve the large and congested centers of population, as do some of the eastern utilities. Our territory covers approximately 89,000 square miles, with a population of 2,760,000. In this territory—some 480 miles from north to south and 225 miles from east to west—we serve a total of 1,250,000 meters, divided into approximately 650,000 electric and 575,000 gas consumers. Of our 650,000 electric consumers, approximately 513,329 are domestic accounts. We have, for many years, directed the major portion of our effort in the building up of this domestic load.

Beginning with the year 1904, which marked our beginning in dealer cooperation, we have recognized that our sales force really consisted of our immediate sales force and our dealers. We are of the opinion that this was the beginning of dealer cooperative effort in the utility field.

We have, for this reason, confined our load-building efforts solely to the sale of ranges, water heaters, air heaters, lighting equipment and introduction of new and unaccepted appliances.

As one of the best examples of our dealer cooperative efforts, we have had in operation for the past three years a local refrigeration bureau which has been very successful in the promotion of the refrigeration load on our lines. This bureau is an organization of distributors and the Pacific Gas & Electric Company entering into promotional campaigns, wherein the company does no direct selling—the dealers selling all of the merchandise, and the P. G. & E. Co. bearing one-half the expenses of these cooperative campaigns and the necessary advertising which was used to back them up.

These campaigns have, in three years, resulted in adding 70,530 new domestic refrigerator users to our lines, or an average of 23,510 new users per year.

Another example, and the newest development in our cooperative work, was the organization last year of the Electric Appliance Society of Northern California.

This organization consists of representatives from all types of retail outlets who sell electrical appliances for the home, from wholesale outlets, and from the utilities operating in the territory involved.

The purpose of the Society is exclusively to promote the sale of electrical home appliances through retail outlets. The organization will concern itself as little as possible with such things as codes, trade practices, etc., and will endeavor to do the specific job of developing a greater volume of electric appliance business for the retailers.

The organization consists of a central body called a board of directors, which functions as a planning and coordinating body, and a number of units in the various cities, whose function is to execute the various campaign plans put out

by the central body. At the present time there are a total of five units and additional units are being formed.

The Society had its first campaign last December to promote electrical gifts for Christmas. The results were outstanding, paid newspaper advertising on electrical appliances having been increased 51 per cent over the same period in the preceding year.

The Society's efforts are, of course, concentrated upon those types of appliances which are not sold directly by the utility, and which amount in volume to some $11,000,000 retail in the Pacific Gas and Electric Company's territory annually.

During 1934 the Society has definitely planned six campaigns. They are: a vacuum cleaner campaign in March, which is now in progress; a refrigerator campaign during the month of May; a table appliance campaign in June; a washing and ironing machine campaign in September; a radio campaign in October; and a general electrical gift campaign in December.

The organization is controlled primarily by the heads of the large department, furniture, hardware and specialty stores in the metropolitan area. The proportion of retailers to wholesalers on the governing body is approximately two to one. This gives the retailers a very enthusiastic interest in the organization and causes them to really do something about executing the plans which the Society prepares.

A utility man functions in each unit and in the central body as Secretary-Treasurer, and the campaign plans are invariably prepared with considerable company assistance. The campaigns are financed by the Pacific Gas and Electric Company matching dollar for dollar with the manufacturers, distributors and jobbers. The retailer pays no part in the general campaign fund. His expenditure is made on his own behalf, by tying in with the Society's campaign program.

This organization has been most enthusiastically received by all concerned, and we feel confident that through it we will not only secure additional business on our lines, but greater harmony will be maintained among the various branches of the industry.

PACIFIC GAS AND ELECTRIC COMPANY'S OWN PROGRAM

In the event that in my talk so far I have created the impression that the Pacific Gas and Electric Company is leaving the major portion of their load building activities to the dealer, my remaining remarks will dispel that idea.

In addition to our dealer program, our sales budget this year contemplates the expenditure of $1,500,000, of which $1,000,000 will be spent for electric sales. This program provides for a total of 436 people engaged in sales work in our organization. Our electric program includes nine different activities aside from our dealer cooperative program as already discussed. These activities cover the full range of load building activities, and are as follows:

Domestic electric appliances
Lighting equipment sales
Commercial and industrial lighting
Street lighting
Commercial industrial power
Industrial electric heating
Agricultural and rural power

There are too many of these activities, and their ramifications cover too wide and varied a list of subjects to go into any detail. Therefore, I am only going to high light some of these activities which I think may be of particular interest to this group.

Agriculture

Most of the Pacific Coast utilities are benefited by the fact that in our hydro development and the transmission of power to the larger centers of population on the Coast it was necessary to cross our agricultural valleys with our transmission lines, and as dry farming is something that is rather out of the question in the hot interior valleys of California, we naturally and aggressively developed a tremendous pumping load. We now have a connected agricultural pumping load of 350,000 hp., which produces for us an annual revenue of about four million dollars.

You might naturally expect that with prices of farm products as they have been, and particularly with prices of fruits and the semi-luxury crops which are usually grown in this area at the lowest ebb they have been in many years, we would have rather a difficult problem to combat in fighting the inroads of gasoline and Diesel engine competition. We have been particularly successful, however, in holding this load and, in the face of that competition, developing new load; and the repeal of the prohibition amendment and the present increase in farm products gives us a decidedly improved outlook for the building of load in our agricultural areas in 1934.

One of our methods of combating competitive power installations has been the institution of a pump testing service. With falling water tables in certain areas, which naturally changed the efficiency of pumping plants and increased the cost of pumping to the consumer, the utility has been blamed for practically everything except the flat feet of some of its consumers. Upon the institution of this pump testing service, which is rendered gratis to the consumer upon request, we were able to definitely prove to him that the low efficiency of his own equipment was more responsible for his high bills than were our rates. As this service is beginning to be used more universally, it is also beginning to make things rather embarrassing for the unscrupulous or "curb-stone" pump dealer who, in the past, has been inclined to guarantee the farmer most any ridiculous percentage of efficiency that might occur to him, knowing that it would be impossible for the farmer to really check his statements. Farmers are now beginning to purchase pumps subject to test by the company, and all pump dealers are beginning to be very conservative in statements they make to their prospects. I need not say to you that this service has had a very decided and favorable effect on public relations.

Commercial and Industrial Power—New Rate

With industry fighting for existence during the past two years, more isolated plant agitation has developed on our system than we have experienced for ten years previously. This is particularly true as Pacific Diesel engine manufacturers who had built their plants and organizations from the sale primarily of marine equipment found, very suddenly, that that market had entirely disappeared. They immediately began invading the industrial market and became rather severe competition for the utilities.

During the past year, with a connected load of 3,000,000 hp. on our system, we have had 500,000 hp. actually in jeopardy. We have been very fortunate in the fact, however, that of this threatened loss of business we have actually lost only 3000 hp., and in most of these cases it was to steam turbines rather than Diesel, and in plants requiring a large steam usage for processing where it was the economical thing for them to effect a heat balance by the use of steam turbines.

The increased price of gold has had, and is having a decided effect upon our mining load. Most of the old properties along the Mother Lode have again resumed operations, or are under option

to companies which contemplate resuming operations in the near future. There are several spots in the Mother Lode country where conditions are more prosperous than they have ever been in the history of the communities.

Lighting

We are having the same experience of all other utilities as concerns street lighting. The urge for economy in the operation of municipal affairs has resulted in some loss in load which, however, we are very happy to say shows, at the present time, an indication of returning to our lines. Our commercial lighting activities have shown an increase year after year, even through the depression, in both load and revenue, and with a more optimistic viewpoint on the part of the mercantile establishments which we serve, we are, of course, very optimistic that we will have a much greater increase this year than usual.

We have put in practically continuous effort on the development of domestic lighting load over a number of years, and have approached this problem through the medium of the direct sale of merchandise to our consumers. Last year this activity resulted in the sale of 21,167 units and $104,000 in new annual revenue to the company.

Our program for 1934 is equally ambitious and with the experience of the first two months behind us, there seems to be very little doubt that we shall accomplish our quotas.

Domestic Appliances

In the merchandising of domestic electric appliances we have, for many years, confined our own activities solely to the sale of ranges, water heaters, and air heaters. For the year 1934 we have set for ourselves the most ambitious program and quotas we have had for the past four or five years.

We have established a quota of 4650 ranges and 3000 water heaters. These quotas include both company and dealer sales. From present indications our quota on water heaters will probably be exceeded, as we have two very definite sales advantages in obtaining this load this year. Due to purchases prior to any NRA codes becoming effective, we have a water heater selling for approximately one-half what the same piece of equipment sold for last year. In addition to this, we have a new water heating rate which should make the water heating load come to 1c per kwhr. This rate is open solely to range users and to qualify the user must have a load limiting or double-throw switch installed between the range and water heater. In the case of the limiting switch, it is so set that at any time the load on the range exceeds 2 kw, the water heater automatically cuts out. It is necessary for the consumer on this rate to go through the service charge in two upper blocks totaling 170 kwhr and $6.65, before reaching the 1c block. This rate became effective on March 1, but our salesmen were busy during the last 20 days of February and during that period of time sold 200 water heaters direct to our consumers.

Our quota of 4600 ranges is going to be more difficult to obtain, due to the fact that we have only the same things left that we have always talked about in connection with electric cookery—cleanliness, coolness, economy, and the other ten points that you gentlemen know forward and backward. Please do not misjudge that statement, however, as we are definitely of the opinion that there is no substitute for continuous sales effort in building this type of load. It is our humble and personal opinion that continuous sales effort, and not rentals and trial plans, is the ultimate answer to the development of this load.

Air Conditioning

Last year in air conditioning we had several men adapted to selling air conditioning equipment direct to small commercial establishments and domestic consumers. It was our first attempt at the development of this type of load except, of course, in the case of large commercial installations such as theatres, hotels, etc., on which type of load we have been cooperating for many years with the manufacturers of this type of equipment.

Our first systematic effort at the sale of small air conditioning equipment—what one might term "package equipment"—resulted in the sale of 20 installations.

This year we have altered our plan on air conditioning and propose to sell no equipment ourselves, as there are now three companies instead of one in the field, ready to engineer, deliver and install small air conditioning equipment. We have six men in the field to aid and assist the manufacturers' and distributors' salesmen of all three of these companies in the sale of their equipment. We feel sure that we shall have a very successful year.

Advertising

These sales plans of ours are backed up by a very extensive advertising program, tying in and utilizing all of the available media at our command to insure their success.

The company has a newspaper advertising program running throughout the year in 245 daily and weekly newspapers throughout our territory. We also employ approximately 305 outdoor 24-sheet board poster boards.

The next link in our chain of advertising is the reduction of the billboard advertising to a bill sticker attached to all of the bills mailed to our consumers. Replicas of the billboard are also used on 1000 of the company's trucks. In addition to those media, the company also utilizes a considerable amount of direct mail pieces in its advertising program.

All of this advertising is institutional copy, does not mention price, does not mention product, talks only of the utilitarian value of the use of certain appliances, and always carries the slogan "See Your Dealer."

In addition to this advertising, the company also maintains a window display program in all of its 65 major offices.

Every month there is directed to all of the dealers in our territory a broadside advertising our advertising; in other words, calling to the attention of the dealer the advertising which the company will utilize during the coming month and urging that he tie in with this advertising and capitalize on it as much as possible.

Extraordinary times call for extraordinary measures; so, faced with a surplus of power, especially during the runoff or spring period, there has been offered and approved by the California Railroad Commission a novel offering to certain classes of consumers, particularly agricultural consumers, the chance to use all the electric current they may wish over the amount used the same month last year at one-half the regular rate. On the Pacific Coast the San Joaquin Light & Power Company was the first to adopt and put into effect this rate, and now the parent company is making the same offer.

The objective is, of course, improved Public Relations, and the creation of the habit of use, thereby permanently increasing sales.

We claim no credit for the originating of this idea, as it was copied from the inducement rate recently instituted by the Alabama Power Co. We are hopeful that it will do much to restore

(Continued on page 116)

A NEW PLAN OF DOMESTIC RATES FOR ELECTRICITY

By F. A. NEWTON

The Commonwealth & Southern Corporation—Chairman, Rate Research Committee, Edison Electric Institute

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

A new departure in rate-making has been inaugurated by three southern companies within recent months. This new plan has attracted wide attention. The primary purpose of the new rate plan is to promote greater use of electricity by domestic and commercial consumers. Greater sales is the chief objective. The new plan of rate-making, therefore, is of special interest to you who are charged with the duty of promoting and increasing the use of electricity.

The companies which have adopted the new rate plan are Georgia Power Company, Alabama Power Company and the Tennessee Electric Power Company, subsidiaries of The Commonwealth and Southern Corporation.

Georgia Power Company, during 1933, sold 929,516,000 kwhr. Its gross electric revenue was $18,040,154. It had 115,816 domestic customers. Alabama Power Company sold 1,042,331,000 kwhr during 1933 with a gross electric revenue of $15,104,038. It had 76,676 domestic consumers. The Tennessee Electric Power Company with 87,278 domestic consumers sold 385,118,000 kwhr in 1933 and had a gross electric revenue of $9,066,342.

The domestic rates which are incorporated in the new rate plan are uniform for the three companies; they apply to all communities served regardless of size or location. These new rates went into effect in Alabama, Sept. 2, 1933; in Georgia, Jan. 1, 1934, and in Tennessee, Feb. 1, 1934, and with the approval of the respective State Regulatory Commissions. The new rates are also specified in the agreement between the Tennessee Valley Authority and The Tennessee Electric Power Company and associated companies which was made Jan. 4, 1934.

Two separate domestic rates are provided in the new rate plan—one is designated as the "Immediate" rate. Its companion schedule is known in Alabama as the "Objective" rate, in Georgia as the "Inducement" rate while in Tennessee, it is the "Promotional".

The Tennessee "Immediate" rate is:

6½c	per kwhr	first 25 kwhr
5c	per kwhr	next 35 kwhr
3c	per kwhr	next 140 kwhr
1½c	per kwhr	over 200 kwhr

Minimum bill, $1.00 per month.

MR. NEWTON

The Tennessee "Promotional" Rate is:

$1.00	per month, including	15 kwhr.
4½c	per kwhr ..... next	50 kwhr
2c	per kwhr ..... next	135 kwhr
1¼c	per kwhr ..... next	500 kwhr
1c	per kwhr ..... over	700 kwhr

Both rates as above stated are net rates.

COMPARISON OF NET BILLS

Kwhr per Month	New "Immediate" Rate	New "Promotional" Rate
10	$1.00	$1.00
20	1.30	1.23
30	1.87	1.68
40	2.37	2.13
50	2.87	2.58
60	3.37	3.03
70	3.67	3.35
80	3.97	3.55
90	4.27	3.75
100	4.57	3.95
150	6.07	4.95
200	7.57	5.95
250	8.32	6.58
300	9.07	7.20
400	10.57	8.45
500	12.07	9.70
1000	19.57	15.20

The "Immediate" Rate was applied at once to all domestic lighting consumers of the company, displacing a regular residence rate then in force. The "Immediate" Rate brought a material reduction to all domestic consumers of the company. The "Promotional" Rate is also available to all domestic consumers under certain conditions. The plan provides that at the end of three years the "Immediate" Rate shall be eliminated entirely and only the "Promotional" Rate will then remain in force.

Base bills were established for each domestic consumer of the company for each month of the year 1933—the year preceding the application of the new rates under the new plan. These base bills for each month of 1933 were determined by computing each month's consumption under the new "Immediate" Rate. For example, if a consumer used 50 kwhr in February, 1933, his base bill for February, 1934, would be $2.87 which is the bill for 50 kwhr computed under the new "Immediate" Rate. If the same consumer in February, 1934 used less than 50 kwhr he would, of course, be billed under the "Immediate" Rate for whatever amount he may have used. If he used, in February, 1934, the same number of kwhr, namely 50 kwhr, as he used in February, 1933, he would still be billed under the new "Immediate" Rate but if he used more than 50 kwhr in February, 1934, then the new "Promotional" Rate comes into the picture. Whenever the consumer increases his use so that his bill under the "Promotional" Rate equals or exceeds his base bill, the "Promotional" Rate automatically applies. Or to put it in another way, no charge is made for increased use over the same month of 1933, unless such increase is large enough to make the consumer's bill under the "Promotional" Rate greater than his base bill for that month.

No application from the consumer is required to secure the new "Promotional" Rate. Its application is entirely automatic. A consumer need exercise no option nor choice.

It is evident that the application of the new plan results in the consumer obtaining certain so-called "free current." For example, the bill under the "Immediate" Rate for 100 kwhr is $4.58. The same bill under the "Promotional" Rate would secure 131 kwhr. Thus the consumer may increase his use 31 kwhr at no additional cost. The amount of this so-called "free current" will vary, depending on the amount of consumer's use, ranging from 1 kwhr at 19 kwhr per month to as high as 438

kwhr at 1000 kwhr per month. The value of this "free current" feature from a sales standpoint is apparent.

Let us take a few practical examples of the application of this new rate plan of The Tennessee Electric Power Company. Suppose a customer who used 50 kwhr in February, 1933, later installed a refrigerator and increased his monthly consumption to 100 kwhr. The additional 50 kwhr would cost $1.08, being the difference between the consumer's base bill under the "Immediate" Rate for 50 kwhr and his bill for 100 kwhr under the "Promotional" Rate. This means an average of 2.2c per kwhr for the additional current required by the refrigerator.

Suppose the consumer had a refrigerator in 1933, and was using 100 kwhr per month. Assume he had later added a range and increased his monthly consumption to 250 kwhr. The additional cost for the current for the range would be $2.01, being the difference between his base bill for 100 kwhr under the "Immediate" Rate and the bill for 250 kwhr under the "Promotional" Rate. The additional current for the range would thus average 1-1/3c per kwhr.

At the close of 1934, all consumers' base bills will be reduced 5 per cent and another 5 per cent at the end of 1935. At the close of 1935, the "Immediate" Rate passes out of the picture entirely and the "Promotional" Rate becomes the only rate in force.

It is clear that during the year 1934, the company will have no reduction in revenue beyond that caused by the adoption of the "Immediate" Rate. In other words, the "Promotional" Rate will effect no further reduction in revenue in 1934. The only effect will be such costs as may be occasioned by the production and transmission of the so-called "free current" which the customers may use under the plan.

In the year 1935, the maximum reduction due to the "Promotional" Rate will be the 5 per cent reduction in base bills effective the first of 1935. This reduction will occur if the consumers do not increase their use during 1934.

In the year 1936, a further reduction of 5 per cent due to the "Promotional" Rate will occur provided there has been no further increase in the use of current by the consumers. Thus under the new plan, the company is given a period of 3 years to build up its sales under the "Promotional" Rate, while at the same time maintaining its present revenues. It is confidently believed that no further reduction in revenue will result but that each year will see an actual increase in domestic revenue due to the promotional feature of the new plan.

What the new plan boils down to is this—the company has set up the rate it believes it can charge three years from now with increased sales per consumer and greater volume of output. The company, however, will give that future rate at once to any consumer who will increase his use. The plan thus permits any domestic consumer to secure, at once, a future low residence rate justified by increased use of electricity and increased volume of sales.

While the new rate plan has been effective in Alabama but six months, in Georgia but two months and in Tennessee but recently, the effect has been marked. The interest of the consumers has been widespread and very pronounced. The Commercial Department and the salesmen are most enthusiastic. The response by the public has been most encouraging. The effect on public relations has been splendid.

It will probably occur to you as you study the application of this new rate plan that some discrimination may result from its application. Such discrimination as may arise under its application affects those situations where the consumer already had in use most of the larger current consuming devices such as refrigerator, range and water heater. Where the consumer does not have opportunity for large additional use by reason of the fact that he already has most of the major devices installed, the new plan will not be so helpful. Perhaps the best statement that may be made with reference to this situation is that which appeared in the order of the Alabama Service Commission when it approved the Alabama Power Company's new "Immediate" and "Objective" Rates. The Commission said:

"It may be charged that under this plan some discrimination will result in favor of the present small user. If there is any basis for such view, our answer is that such condition will be temporary, and when all the facts and circumstances are considered, that this discrimination, if it exists, will not constitute an unjust discrimination.

"There are few, if any, consumers who cannot take advantage of the plan and use increased quantities at a very low cost with great added convenience and profit. It is also clear that the only way in which the larger users may obtain lower rates under existing conditions is by increased use by the great number of small users resulting in a greater volume of sales by respondent.

"The Commission is convinced that only in this manner can the public receive progressively lower rates for residential service and at the same time leave respondent in a financial condition to maintain its credit and to meet its public requirements for extension of service and maintenance of its system."

Along with the adoption of such "Promotional" rates as are embodied in the new rate plan, must go surveys of the prospective business to be obtained and studies of the characteristics of the customers in the territory affected, in other words, a careful analysis of the market. The study of the sales to domestic consumers will bring out some very interesting and striking facts.

I have had occasion recently to analyze the segregation of domestic sales of a company which has an average consumption per domestic consumer of nearly 800 kwhr which as you know is above the national average. This analysis showed that of some 80,000 consumers, 73 per cent used 50 kwhr, or less per month. This 73 per cent of consumers averaged only 250 kwhr per year. They used only 24 per cent of the total domestic sales of the company.

Turning to the other side of the picture, we find that the remaining 27 per cent of the consumers using over 50 kwhr per month, averaged 2132 kwhr per year and used 76 per cent of the total kwhr sold to residences.

This particular company has set a goal of 1800 kwhr per domestic consumer. That is an increase of 1000 kwhr per year. How is that to be obtained? It may be obtained by increasing every consumer's use 1000 kwhr per year which isn't likely, or it must be obtained by increasing the consumption of one-half of them 2000 kwhr per year, or if only one-third, they must be increased 3000 kwhr each per year. Is the best field for increased sales among those already using over 50 kwhr per month, or is the greatest opportunity in those below that consumption? Assuming those who are now using over 50 kwhr per month do not increase their use at all, then the other 73 per cent now using an average of 250 kwhr would have to be increased to 1670 kwhr per year to get the overall average of 1800 kwhr for all consumers. A little figuring shows that this means that these 73 per cent of the consumers would have to be increased 1420 kwhr per consumer per year.

This is a real job. Assuming that a large proportion of these small users will not for various reasons increase their consumption very much by the purchase of ranges or refrigerators, then the remainder will have to be increased

much more than 1420 kwhr per year.

I mention these facts to illustrate what a job the company has before it, how important it is that the sales to existing consumers be analyzed thoroughly to understand where the market is.

The same plan already described with reference to domestic consumers has been put in force by The Tennessee Electric Power Company and Georgia Power Company for commercial consumers with some modification. The new "Promotional" commercial rate of The Tennessee Electric Power Company, effective March 1, 1934 is:

$1.00 per month, including 15 kwhr.
4½c per kwhr—next 15 kwhr per 100 watts of demand
2c per kwhr—next 10 kwhr per 100 watts of demand
1c per kwhr—for the excess.

The consumers' demand for the application of this rate is determined by first making certain exclusions from his connected load, such exclusions being chiefly refrigeration, water heating and cooking equipment and then applying a sliding scale of percentages to the remainder. The consumers have the option of a measured demand which, however, shall not be less than 5 kw. One interesting feature of the determination of consumers' demand under the new Tennessee "Promotional" Rate is that there shall be excluded from the connected load all exterior illumination in an amount equal to the interior lighting connected load. In arriving at the interior lighting load, a further interesting step has been taken, namely, to exclude 50 per cent of the connected load in window lighting.

It will be noted that the new "Promotional" commercial lighting rate is similar to the new "Promotional" domestic rate in its form and in the rates for the blocks of the schedule. This new commercial lighting rate is also applicable to all consumers in all communities, regardless of size or location.

In certain features, however, the new commercial lighting plan differs from that adopted for residences—first, the base bills are the actual bills paid in the months of 1933 and not as recomputed under the new "Immediate" Rate as in the case of domestic consumers; second, the new "Promotional" commercial rate does not displace the other commercial rate for 5 years instead of 3 as in the case of domestic rate; third, there is no reduction in base bills as provided in the domestic rate.

The companies are satisfied, from surveys made, and from a study of conditions in their territory that the possibilities in the way of increasing sales are as large, if not larger, in the case of the commercial consumers as in the domestic field. They, therefore, feel that all of the advantages expected in the application of the new domestic rate plan will be equalled, if not exceeded in the application of the new "Immediate" and "Promotional" commercial rates.

Power rates must be competitive as they always have been and always will be. The companies must meet competition of isolated plants or the business will not be secured and held.

I think, perhaps, one of the most important things confronting us with reference to power rates is to secure, if possible, greater uniformity of contracts and rate forms. We are dealing with industries which operate in many cases in a number of cities and sometimes in several states. It is difficult for these industries and commercial establishments to understand why the contracts of electric utilities and the form of expressing their rates and rate provisions should be so different. They understand quite thoroughly that they cannot expect uniform rates because conditions and costs vary between one company and another but they do believe that the conditions which surround the contracts and the language used in expressing provisions of the rates may be simplified and made more uniform throughout the country. In this belief, I feel, they are justified. Some efforts have already been inaugurated with some success, to secure greater uniformity and greater simplicity in contracts and rate forms. I think it highly important that this work should be continued.

INSTITUTE'S PRESIDENT HONORED ON 25TH ANNIVERSARY OF SERVICE WITH HIS COMPANY

Mr. Cortelyou in his office with a group of other officers of the Consolidated Gas Company who were present to felicitate him on the occasion of his completing twenty-five years of continuous service with the company. Left to right, F. H. Nickerson, Vice President; Oscar H. Fogg, Vice President; Floyd L. Carlisle, Chairman of the Board, Mr. Cortelyou; W. Cullen Morris, Vice President; John Stilwell, Vice President, and H. M. Brundage, Vice President.

The twenty-fifth anniversary of President George B. Cortelyou's employment with the Consolidated Gas Company of New York was observed on March 26th. Mr. Cortelyou spent the day in receiving the greetings and resolutions of company officers and organizations, and in presiding at company meetings.

Mr. Cortelyou joined the company as President on March 25, 1909. Because the day on which he completed twenty-five years of service fell on Sunday, the anniversary was observed on the following Monday.

Many baskets of flowers were sent to his office during the morning and delegations from the various company organizations visited him to present engrossed resolutions. That night he was the guest at a dinner given at the Union Club by the trustees and officers of the companies in the Consolidated Gas Company system.

In completing twenty-five years of continuous service, Mr. Cortelyou becomes eligible for membership in the Company's Quarter Century Club, which at present has over 2000 members.

PROBLEMS OF COMMON INTEREST TO MANUFACTURERS AND UTILITIES

By J. S. TRITLE

President, National Electrical Manufacturers Association

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

Your Chairman, Mr. Whitwell, wrote to me on February 19, asking me to talk before this meeting. He also asked me to notify the different groups of NEMA of the meeting here this week, and asked me to extend for him a cordial invitation to the various manufacturers to attend. The latter part of this assignment I have fulfilled, and I know that the manufacturer groups were pleased to receive an invitation to deliberate with you and join in your discussions.

The first part of the assignment, which I am now undertaking to fulfill, is not quite so easy. Perhaps the reason for it is that Mr. Whitwell stated in his letter that the more ouspoken I was, the more valuable would be my contribution to the program.

This industry is so large, has so many problems and, yet, is so full of opportunity, that it is difficult to decide just which portion of the problem should be discussed. However, let's look at the fundamental problem and see where it leads us.

You men are responsible for the selling of electric current at a profit. The manufacturers' job is to sell the products they manufacture also at a profit. Since it is obvious to all of us that the Utility Companies' immediate hope and future depend upon the sale of current-consuming devices for the home, and since the manufacturers are the ones who make these products for you to sell, it is the most logical thing in the world to say that the manufacturer and the utility company should be the strongest, closest allies. In other words, there is just one goal for all of us and that is to SELL and, aside from our own selfish motive and our own individual business, we can see that this goal is even broader than our own home-base, because both Recovery and Prosperity for our National structure depend upon our ability to get more business.

None of us seems to have the slightest doubt but that the market available to us is very great. There are 20,000,000 domestic consumers served by the utility companies, and 4,000,000 industrial and commercial customers and, with both

MR. TRITLE

classes of customers, the present saturation is very low.

I sometimes wonder whether keeping these low saturation figures constantly in our minds is not one of our difficulties. We see a new product introduced into the market, we know we have 20,000,000 wired homes, of which a large number can be sold this new product, and the next thing we know the utility companies have forgotten everything else and are putting their entire effort on this single product with the "Do It Today" hysteria — meanwhile neglecting and forgetting the other many products which are equally important in their business of selling current-consuming devices and which, in turn, sell kilowatt hours for the electric service company. With this mad desire to saturate the market—in less time than it takes to tell —there is immediately introduced into the picture merchandising practices which work at cross-purposes and which, eventually, spell ruin for the particular product and the industry. Rather than explain what I mean by this statement at this particular moment—I would prefer to reflect for a few minutes on what has transpired in connection with some of the individual items which go to make up the electrical merchandising business.

For example, let us look at lighting for just a moment. The selling of illumination was and still is the backbone of the central station industry. In the early days a continuous, sustained and well-ordered activity was, year after year, launched to make customers conscious of illumination by electricity. This activity sold kilowatt hours, and the results obtained were the best justification for a continuous, hard-hitting, year after year sales program on lighting. But what happened? The interest aroused by the many other current-consuming devices that were introduced, gradually pulled effort away from the sale of lighting, and, in consequence, the utility companies' loads began to suffer. Then some of the able men in the industry realized their mistake and the "Better Light—Better Sight" campaign was launched last fall. You, I know, will receive a report concerning the results at this meeting, and I know how gratified you will be by them. However, isn't it rather ridiculous that a problem as fundamental to the utility companies as lighting should have been allowed to reach a point where it was necessary to sell the utility companies on a renewed interest? And I wonder how much more could have been accomplished in the fall drive for lighting, if the effort throughout the years had been as continuous and as sustained as when it was started?

Or let us take small appliances, and look at the history behind this group of products. With the advent of the electric iron, it was recognized as a large current-consuming device and the utilities, seizing the opportunity to sell current at a much more rapid rate than lighting permitted the load to develop, began aggressively to promote this product. Quickly following the iron were the toaster, percolator, waffle-iron, etc., etc. For a time there was a fine continuous, coordinated effort on the part of manufacturers, the utilities and other retailers in the promotion and sale of these products. The price-levels were fair and their promotion adequate. Then other current-consuming devices in the major appliance group began to appear, and real effort to sell small appliances began to dwindle.

An attempt was made to offset the decreasing effort and to hold up the volume with a demand for low-priced and cheap appliances. Obviously in meeting the demand for low-priced merchandise, the manufacturers had little, if anything left for promotion. Accordingly, the volume began to slide downhill and with the decreased sale and the almost profitless volume remaining, we saw a wide trail of bankruptcy and closed businesses. In other words, we find a business which was the backbone of utility sales some ten years ago tottering on feeble legs. Now, again it is recognized that these small appliances play a tremendously important part in the affairs of the utility companies. The need of increased revenue from the small current-consumer, especially the non-profitable customers who represent a very substantial group is apparent. These customers, whose spending margin is limited, and who cannot be counted on as immediate purchasers of the more expensive load-building appliances, are prospects for these smaller appliances. And with the sale of these smaller appliances to these customers, the educational and back-ground work necessary to creating a desire for the large appliances — such as ranges, water-heaters, refrigerators, etc., is developed.

This reasoning has caused your organization in cooperation with the manufacturers, to launch the E. E. I. Small Appliance Campaign, and I commend the judgment and congratulate the men responsible for this activity. On the other hand, I cannot condone the conditions that have existed during the past five years. The fickleness that has been apparent which, in some stages of the development of the small appliance industry, caused the utilities to put the strength of their organization behind these products, when they expected stimulation to come only through price, then the almost complete forgetting about these products and now the renewed interest and attention makes almost for chaos in the industry.

It represents a back-breaking condition to the manufacturers because no industry can succeed with the fluctuations that have been in the small appliance business. The utilities have suffered alike with the manufacturer, having lost the effort on the part of the manufacturer in continuing a sustained effort to promote these products and develop new and improved appliances. Nor have the manufacturers been able to bring their costs down through the advantage of a somewhat level if not increasing volume, which is so very much desired by you.

Let me continue to discuss some of the other important products before I draw the conclusions from the remarks I have made in respect to lighting and appliances. Perhaps we should look at some of the major appliances and begin with the electric range.

With the electric range we found a somewhat different problem. At its inception the natural desire to own electric ranges did not exist, and accordingly a great deal of pioneering and educational sales work were required. The electric range at that time was by all odds the heaviest load-building domestic device and accordingly received attention. The start was slow but continuous and sustained. The cooperation between the utility and the manufacturer was rather complete. The elecric range business began to grow and in those areas where the utilities had little to fall back on in industrial and other loads, they put forth the necessary promotion to build a real volume. In Oregon, Washington, Idaho, and Utah, approximately 30 per cent of the domestic consumers have been sold electric ranges, whereas the national saturation is somewhere around 5 per cent.

There have been many reasons why electric ranges have not been sold in larger volume. First, rates in some sections were too high. Second, the fine promotion work done cooperatively by the utilities and the manufacturers awakened the gas range manufacturers and they proceeded in an intensive way to improve their products and bring them up to the high standards of efficiency, utility and convenience that was evident wih electric ranges. Third, the combination public utility companies with large investments in gas interests were not disposed to the promotion and sale of electric ranges on their lines. But to my mind none of these is the real cause of our failure to expand and develop the range business. Rather, in my opinion, the fine structure which was well under way in 1927 and 1928 was allowed to topple, first of all, perhaps, because the electric refrigerator came into the picture and the affection of the utility man for the electric range business was transferred to this new baby.

Because of the desire to transfer interests and attention, the utilities apparently decided that again price would hold up the volume of electric ranges while they were devoting all of their time to electric refrigeration. With the price influence in the picture, promotion waned. In fact it almost ceased. The reason is obvious. The manufacturer could no longer put forth the effort to build the business because, after all, there is only a given number of dollars between factory cost and selling price. The dollars remaining between manufacturing cost and selling price are narrow. Something must be forgone and in this case it was promotion.

I wonder sometimes whether the utility companies feel that the manufacturers are profiteers. If they do, they have only to look at the statements of most of the companies to realize that our profit margins are very small. In other words, I sincerely believe that the manufacturers have always attempted to bring down their prices as their costs justified them and that there has never been an attempt to hold prices to a point where sales were limited because of high prices and profit excessive. I mention this at this point because I earnestly desire to point out that because manufacturers were operating on very small margins of profits, prices cannot be reduced unless at the same time items of expense are eliminated and with a problem requiring so much promotion and educational work as electric ranges, it is a sad mistake to eliminate advertising and promotion.

There's another angle to this electric range business that has been disturbing. The utility companies have desired to enlist the cooperation and support of other retail agencies in the sale of electric ranges. They have naturally looked to the manufacturer to build this distribution. You all know with a limited volume the effort on the part of the manufacturer to establish dealers is costly and will not pay its way. However, the manufacturers have shown a willingness and a desire to cooperate and do their utmost along this line. And yet I can cite many cases where the principal manufacturers have done much to effect this distribution largely for the benefit of the utility and then when the campaign period came along they found that the utility had purchased some unknown range and the cream of the business in that territory was diverted to the manufacturer who did nothing to further the cause of the industry as a whole.

While these practices were going on, it was evident that it would eventually spell ruin for the electric range business and it appears to me that this almost has happened. Is it not time that we took real stock of this whole situation

and developed our planning and thinking on a basis which will lift the electric range business out of its doldrums and up to a level which will produce a worthwhile business both from the standpoint of the utility in increasing its load-building and from the standpoint of the manufacturer who makes these products.

Just one more discussion of product and that is refrigeration. No item of the electrical merchandising business has had as rapid a growth as electric refrigeration. Terrific sums of money have been spent for advertising and promotion. It has been estimated that at least twenty-five million dollars were spent in the promotion of the electric refrigerator in the past five years to reach the present annual volume of business.

While it is a great source of satisfaction to look back on last year and find that all sales of electric refrigeration were broken, it is disheartening to also reflect that the profit in the selling of electric refrigeration has been sadly lacking. But it is the future of electric refrigeraion that I want to stress. The business is at the cross-roads for from now on the profit should accrue to both retailers and to manufacturers. But if the same mistakes are made in electric refrigeration that have been made in the merchandising and distribution of other appliances, we will in another few years look back upon refrigeration as just another headache.

In your business as well as ours there are just three elements and those three elements make for the result — profit. As I see it, we have product, price, promotion. Those are the things you have to sell and those are the things we have to sell, and the summation of all is profit. What has been so sadly lacking in the merchandising business has been the proper balance of these three essentials. We have at times gone from quality products down to the cheapest of products. At other times from good fair prices to the lowest of prices. At still other times from a good, sane, active promotion to a standstill on promotion. What is needed more than anything else in the electrical merchandising industry is our ability to get together and to balance product, price and promotion.

Today we are all on trial—utilities and manufacturers alike. The pressure for lower rates is gaining impetus and the utilities must face the problem and still secure a return on their investment which will pay dividends to their stockholders. The manufacturers are in an identical position—for they must increase their business and at price levels which will permit a profit with which they may also pay dividends to their stockholders. It is a trying time, and we are at the cross-roads. The sympathetic understanding of each other's problems will go far toward reaching the proper solution. Heroic measures which, on the face of them, might seem the panacea, will fail. There is no panacea which will accomplish the end over night. However, as I said in the beginning, the ultimate ends to be gained by both the utilities and the manufacturer are alike. Accordingly, they should be the strongest allies. The picture does not seem so gloomy. We have the forces, which if harnessed and put to work could go far, but these must be coordinated and correlated. The understanding of each other's problems must be absolute. The appraisal of the problems must be complete and out of this appraisal must come a solid, logical and fundamental business-building program. We must not seize on one flare of red fire and consider that this torch will light the way because the flare always has and always will burn out. Then we find ourselves in darkness groping for a way out. It seems to me that in the old days we were much closer together—that is the manufacturer and utilities—we sat down and discussed our businesses—we reasoned with our problems and, although there was not always an immediate meeting of minds, we soon approached a working arrangement that brought results. Since then it seems to me we have been grasping at straws and these straws have not built a platform on which we could all stand. Perhaps this all has been a product of the times—but it does not necessarily follow that this should go on forever. We have, in the manufacturing industry some real brain and ability, and this brain and ability is matched in the utilities. With the ableness represented by the leaders in the commercial phases of the utilities, and that which I believe we have in the manufacturing business, I am dead certain that a program for continuous and sustained sound effort along the broad front of all of the electrical merchandising business can be established and that means should be taken to approach this end quickly.

For a considerable period there have been lengthy arguments concerning what might be called quality apparatus and at one time it seemed almost unsurmountable that an agreement could be reached. Lately, due to the efforts of the public utilities and the manufacturers, being willing to sit down and talk over the problems freely, there is no question in my mind that a decision fair to the utilities and the manufacturer can be reached, with consequent good to the industry.

For a long time public utilities have been under state and government regulations and for the last eight or nine months we, manufacturers, find ourselves more or less under the same regulations. We have seen in the last eight months the operation under NIRA and during this time there has been quite a marked revival of business in the United States, many companies showing profits who did not in the past, others decreasing their losses. We have seen millions of people put back to work, but there is stll a very big, broad question as to whether what has been done so far is on a permanent foundation and there is no question that there are still many uncharted seas we will have to cross before the country is on a sound and prosperous basis. We have seen the Government—in the last eight or nine months—getting more and more into the affairs of private business in the United States. Departments after departments are being organized in Washington and there are many departments of which no knowledge exists in the minds of the general public.

This regulation is now spreading from a national to also a state basis. Many departments which now operate nationally will operate in the different states. Thus we will have national supervision and state supervision thereby causing dual regulation. If this continues, there is no question that it is going to stifle initiative and private enterprise.

You are all familiar with what has happened in two recent weeks in Washington—the first week was spent hearing the consumer reaction. The second week was devoted to a meeting of representatives of all industries in the country to the end that Government and industry would get a clear picture of what is going on and endeavor to solve some of the problems which are, in my mind, just as large and grave as confronted by us a year ago.

The problems in the electrical business can be solved and put on a sound basis if there can be a coordinated effort of the public utilities, manufacturers, jobbers, and contractors, sitting down and meeting to discuss their respective problems. This same procedure is ultimately

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POWER SALES POSSIBILITIES

By W. H. SAMMIS

The Commonwealth & Southern Corporation—Chairman, Industrial Heat and Power Subcommittee, Sales Committee, E.E.I.

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

During the past few years the work of the Power Sales Engineer has been most disheartening. His time has been primarily spent in fighting to retain existing load and in explaining why power rates could not be reduced as commodity prices fell. In fact, it was with fear and trembling that he made the periodic calls on his customers. But that was yesterday. The new day is here and the sun is rising gradually over the horizon. The very factors that were used in combatting purchased power by isolated plant equipment manufacturers and consulting engineers are now the tools of the Power Sales Engineer. The shoe is on the other foot.

Today the price of isolated plant equipment is increasing. Labor costs are rising and fuel costs are advancing by leaps and bounds. Whereas a certain grade of coal, a year ago, sold at $0.85 per ton at the mine, today the code price is $1.65 with talk of a further increase. A certain grade of fuel oil, in 1932, sold at $0.60 per barrel f.o.b. New York, whereas today it sells at $1.20 per barrel. A few days ago I asked our purchasing agent to give me a memorandum of the price increases of materials used in volume in our industry. Here are a few of the items:

MR. SAMMIS

	1933	1934	Per Cent Increase
Copper—Electrolytic	$0.05 per lb.	$0.08 per lb.	60
Standard Pipe, 1"-3"	52.35 per ton	61.75 per ton	18
Western Red Cedar Poles	3.50 each	5.25 each	50
Fir Cross Arms	62.91 per C	74.46 per C	14
Secondary Racks	34.50 per C	62.90 per C	82
Insulator Spools	3.75 per C	10.92 per C	191
Friction Tape	.18	.29	61
Cartridge Fuses	.....	.....	59

I would suggest that your purchasing agent furnish such information for the use of your Power Sales Engineers in their discussions with their prospects.

Today the list of isolated plants in your territory is becoming a prospect list such as you have not seen in years. However, these prospects will not become customers until power men actively solicit the business.

In Washington these days we hear a great deal about open prices versus secret prices, price filing, control of prices, etc. What does this mean to our industry? In my opinion, among other things, it means the rehabilitation of industrial plants in order to take advantage of the improvements in manufacture which have been neglected these past few years. As soon as a manufacturer can obtain a few dollars on the black side of the sheet he will invest money in obtaining up to date, efficient methods and equipment to enable his company to obtain its share of business. The inefficient plant will not survive. Here is where our old friend, "Electric Heat in Industry" will enter. Some years ago I recall stating, at a N.E.L.A. Convention, that the prospective industrial electric heating load based on a partial survey of the country was twice the then motor load. Time has passed, but I do not believe conditions have changed very materially. At any rate there is an almost untouched market. Probably the latest development which offers enormous possibilities is that of electric gray iron melting.

One of the companies with which I have the good fortune to be associated added 1800 kw in electric furnace load for gray iron melting and 1000 kw for vitreous enameling in the plants of two of its customers in one city of 50,000 population during the depressed year of 1931. True, this is an exceptional case but it does indicate that the load is there. We all like to talk of large industrial heating loads, but let's not forget those midget load builders that have been our power salesmen's salvation in obtaining additional load the past year or two and act as entering wedges to make the customer electric heating conscious. Three manufacturers report that they sold a total of 148,000 kw of these small electric heating units in the year 1933. The E. E. I. BULLETIN carries each month a page or two of Industrial Heating Items, commenting upon new and novel applications in this field. Manufacturers have prepared direct-by-mail literature for our use.

Now what about commercial cooking and baking. Repeal has brought new habits. The hotels are again doing business in the dining room and not merely in the coffee shop. Saturday night has again become a gala night. Small restaurants are operating under the same management for more than a few months at a time. Money will be spent in replacing and providing additional kitchen equipment. A few figures, however, as to what has been done. Twenty-three utilities report the sale of 13,000 kw of commercial cooking equipment during 1933, estimating the annual revenue to be $430,000. Figures from individual utilities show conclusively that wherever real sales effort has been applied, the revenue has been obtained. For example—

Company A—10,000 commercial meters
1932—535 kw—$23,300
1933—350 kw—$15,000
} 1 man

Company B—7,000 commercial meters
1933—359 kw—$11,000—1½ men

Company C—
1933—550 kw—$20,000
1934—quota — 40,000—4 men
2 men to date 40% over quota
2 men to date 90% of quota

Experience has shown that in general one man can be employed profitably on

(Continued on page 113)

PRESCRIBING FOR CRITICAL POWER CASES

By H. C. THUERK
Utility Management Corporation

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

I have been asked to present some thoughts which might be of assistance in meeting some of the more serious competitive problems we face in retaining our present power business. This is a rather difficult thing to do as we find that effective prescriptions must be made up to fit particular symptoms or diagnoses. In view of this, I would much prefer to make some suggestions which might be molded together to form a tonic which, if used regularly in our negotiations with our customers, might eliminate the necessity of preparing specific prescriptions for fatal cases.

From the comments of the previous speakers, and from our own experience, I am sure we are in accord that today conditions in the manufacturing field are somewhat different from those which prevailed a year ago. This change has brought about some conditions which make our job of holding power business just a little more difficult but, on the other hand, some of the new conditions make our job somewhat easier.

We find in the past year that commodity and labor prices have advanced, much of the advance being chargeable to the introduction of codes in the various industries, with the result that total manufacturing costs have shown a decided upward trend. In some cases, this development has not been accompanied by a corresponding increase in the selling price of the products, with the result that in many industries the margin between selling price and cost has been materially decreased. Increased production has to some extent overcome this trend toward lower profits. We find, however, that this narrowing of the margin between selling price and cost price has resulted in many concerns continuing their efforts to effect economies wherever possible.

I think that we should keep in mind the desirability of making our power rates follow more closely power costs obtainable from competitive sources. A notable example of the adaptation of this principle is in the rate which was used by a number of the companies in the midwest on one of the pipe line electrification jobs. This rate, as many of you know, is based on one hundred per cent load factor operation and provides for

MR. THUERK

increases in the net rate per kilowatt hour as the load factor drops.

During the past year, our industry has had to bear the brunt of the efforts of those who are anxious to inject government ownership into the entire field of private business. Government credit and outright grants of money through the Public Works Administration have encouraged the entry of political subdivisions into the electric light and power business. Naturally this has resulted in increased efforts on the part of many manufacturers of competitive power equipment who would gain most through the establishment of large numbers of individual power plants. We find that the Diesel engine manufacturers have been particularly active and, although it appears that much of their activity has been concentrated on municipal plant jobs, yet we find that along with this they have, in many localities, increased their efforts to sell their product to industrial plants.

There has been so much activity on the part of the federal administration directed toward reducing unemployment that undoubtedly this will have some effect on our efforts to shut down existing isolated generating plants. Manufacturing plant managers have had so much pressure brought to bear on them to keep as many people employed as possible, that they are bound to be reluctant in many cases to adopt methods which will materially reduce their working force. This same line of reasoning may influence them to feel that the installation of an isolated plant will help to absorb some labor which otherwise they might have to release. However, I feel that the absolute necessity for keeping production costs as low as possible will overcome this influence in a majority of cases.

During the past year we find that a large number of unemployed engineers have continued their efforts to obtain employment for themselves by analyzing our power customers' power and steam costs, and in some cases have advised the installation of isolated generating plants. They have been aided to some extent by certain articles in the technical press which have tried to create the impression that there is an impending shortage of purchased power for industrial customers. A particular class of larger engineering firms have apparently increased the intensity of their efforts along this line. In some instances we suspect that the recommendaion to make investments in power producing equipment has been influenced by the thought that considerable additional fees are obtainable through the installation of the equipment. Many of these engineers in the past nine months have directed their efforts toward interesting municipalities in municipal electric light plants.

I believe that the answer to this activity lies in our taking steps, as quickly as possible, to see that all of our larger and competitive power customers are producing and utilizing steam, water and other services as efficiently as possible and, in addition, are utilizing purchased power to the fullest and most economical extent. This can be done by having complete cost studies made for each of our customers in this group. By doing this we can take the credit for recommending certain economies to our customers instead of leaving this to an outside engineer who may use these savings to add to what he claims can be saved through the installation of generating equipment.

The present trend toward a shorter working week brings up the question as to its effect on industrial customers. This

development, unless accompanied by possible re-arrangements of processes and equipment operation, may result in lower load factors which will undoubtedly bring renewed requests from customers for consideration of lower rates. In some instances these requests may be reasonable, depending of course on the form of rate under which the customer is being served. However, our job in this instance is to point out that with a lower load factor, higher unit costs for power will result from private plant generating and in many instances the average rate for private plant generation will go up much more rapidly than if power is purchased. Here again we require an analysis of the individual case before applying the remedy.

Most of what I have said has dealt with some of the unfavorable conditions which we are facing in our job of retaining power business, and yet today there are many conditions which are distinctly favorable to us.

As I stated previously, commodity prices and wage rates have been increasing almost steadily since February of last year. With the adoption of the code for the coal industry, we find, as pointed out by Mr. Sammis, that coal prices have increased materially in the past few months. Fuel oil prices have advanced. Prices of power plant equipment have materially increased in the past six months. In many instances load factors have decreased. These developments have resulted in an increase in the cost of generating power in small isolated generating plants.

We are living in a period when policies and principles seem to be changing quite rapidly. It is hard to predict just what changes may be made in the policies of the federal government which materially influence all industry. As the *New York Sun* pointed out editorially a few days ago: "This is disturbing to industry. How can contracts be made when a manufacturer does not know what his costs will be? How can he proceed with confidence if he does not know what the Government is going to do next about hours and wages?"

This uncertainty has led many of our industries to adopt a policy of making very little, if any, new investments in productive equipment. This condition was brought out clearly in a report recently issued by a special committee of the A.S.M.E. on Capital Goods Industries which covered 169 concerns in 6 cities. This report states that about two-thirds of the concerns have no plans for modernization of machinery and mechanical equipment, and about sixty per cent of these concerns state that they would not invest in machinery or mechanical equipment at the present time.

I believe it will be helpful to our power salesmen if they can keep this condition firmly in mind when dealing with our power customers. As a matter of fact, our successful power salesmen are continually keeping in touch with developments such as this, so that they may be at all times thoroughly acquainted with the general feeling and policies of their power customers.

In an effort to develop a plan of selling power which would most nearly embody the same methods which most concerns use in determining the advisability of installing new equipment, we have for some time urged our own operating properties to prepare power cost reports with this thought in mind. In Chart 1 is shown what we might term the ordinary method of comparing power costs. The undesirable feature of this set-up is that it indicates a saving in favor of generated power.

In Chart 2 is shown the method we are recommending and which has the distinct advantage that it does not indicate any saving, regardless of the period of years it takes to pay for the equipment. After this statement has been prepared, then we try to show the customer the many influences which might operate to make it difficult to actually amortize the investment in the required period.

The use of this method of determining the attractiveness of an investment will, I believe, aid materially at this time in combatting certain jobs where the equipment is to be paid out of savings.

In some instances interchange power arrangements with customers may be found to be satisfactory to both the seller and buyer of power. This arrangement will give the customer a lower overall net cost for power and at the same time, in an emergency, will make available to the power system, additional capacity which can be used to supply the needs of that particular power customer and, in some instances, the power system itself. *(Continued on page 116)*

COMPARISON OF POWER COSTS
(FIXED CHARGE METHOD)

OPERATING COSTS		
FUEL	$50,000	
LABOR	20,000	
WATER	3,000	
MAINTENANCE	8,000	
MISC. SUPPLIES	2,500	
TOTAL		$83,500
FIXED CHARGES		
INTEREST 7%		
DEPRECIATION 10%		
TAXES & INS. 3%		
TOTAL 20% OF $300,000 =		$60,000
TOTAL COST OF GENERATING POWER & STEAM		$143,500
COST OF PURCHASED POWER & STEAM		$160,000
SAVING IN FAVOR OF GENERATING POWER		$ 16,500

Chart 1

COMPARISON OF POWER COSTS
(YEARS-TO-PAY-FOR INVESTMENT METHOD)

OPERATING COSTS		
FUEL	$50,000	
LABOR	20,000	
WATER	3,000	
MAINTENANCE	8,000	
MISC. SUPPLIES	2,500	
TOTAL		$83,500
INTEREST, TAXES & INS. @ 10% OF $300,000		30,000
TOTAL COST OF GENERATING POWER & STEAM EXCLUSIVE OF AMORTIZATION		$113,500
COST OF PURCHASED POWER & STEAM		$160,000
BALANCE AVAILABLE FOR AMORTIZATION		$ 46,500
YEARS REQUIRED TO PAY FOR INVESTMENT (STRAIGHT LINE METHOD)		6½

Chart 2

ADDITIONAL KILOWATT HOUR SALES FROM AIR CONDITIONING

By C. E. MICHEL

Union Electric Light & Power Co., St. Louis—Chairman, Air Conditioning Subcommittee, Sales Committee, E.E.I.

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

Air-conditioning has arrived at the point where additional kilowatt hour sales depend on and are proportional to the sales effort put forth.

We, therefore, have two things to consider: (1). The market, and (2). The method.

THE MARKET:

Space cooling remains our largest, most important and most spectacular field. This divides itself into three groups:

1. Cooling for comfort and health in residences and executive offices.
2. Cooling for profit in stores, restaurants, theatres and all those places where volume of business depends on attracting attendance.
3. Cooling for industrial processes.

These three fields vary in their attractiveness with different localities, but each is present in almost every section of the country. The comfort and health market is one which lends itself to the wide distribution of comparatively small units which once started will progress at a rapid rate. It has been recognized for a number of years that to supply this market and meet the ever growing demand for summer comfort and health, small units are necessary, preferably self-contained units, where the entire equipment is enclosed in one package. Last year, a limited number of such devices were on the market and from the experience gained, the manufacturers have developed self-contained units, in some cases made portable by being mounted on rubber tired casters, and these will have a wide application in this field. We know of at least five of the large manufacturers who have included this type of equipment in their lines in one or more sizes. At least one manufacturer has gone so far as to arrange his design in such a way that this room cooler can be operated on 115 volt circuit and it is likely that the starting current of the others will be low enough so that they no longer will require special wiring. These units, in most cases, have ½ hp. motors. The cost will be about $400.00, some running under and some slightly over. They will be capable of cooling and dehumidifying rooms of 150 to 200

MR. MICHEL

square feet under average conditions. Here is a piece of package merchandise which already has public acceptance because the results are tried and proven, are desired by the public, and the price is right.

You purchased electric radios long before they had reached the degree of mechanical perfection now attained by room coolers. The expenditure you make for your automobile is far above the cost of room cooling.

You are selling domestic refrigerators every day for cooling ten or twelve cubic feet of space at prices approaching that of a room cooler which cools fourteen hundred to eighteen hundred cubic feet of space. The benefits it brings offer a greater sales appeal than any other device of like cost.

Without considering the many applications for residence and office cooling, which require larger size units on which installation work is required, we now have the opportunity of selling a package cooler which will bring us a revenue in kilowatt hour sales comparable to the well established domestic refrigerator. These self-contained room coolers will consume approximately five hundred watts per hour. Data gathered recently by our Air-Conditioning Subcommittee, shows an average usage of cooling equipment in excess of 1200 hours per season. The figures varied from 500 to 2800 hours. For purposes of estimating, we can assume a figure below the average. We believe that most of the small self-contained room coolers will run at least 1000 hours during the cooling season and we have for each one of these installations a potential increase of 500 kwhr per season. The total kilowatt hour sales for the country at large will depend on the amount of sales effort put forth in marketing these coolers.

Manufacturers and distributors are alive to the importance of the market. They have gauged the market for 1934, and have geared their production to a substantial volume. As a result, the number of salesmen who will contact the public will be greatly increased over last year. Contacts with distributors in St. Louis lead us to believe that there will be over one hundred salesmen in that territory where there were but thirty last year.

There is another potential value to this type of equipment. At comparatively small expense, it will enable the customer to feel and experience the benefits of room cooling and dehumidifying. It will create an appetite and a desire to possess larger and more adequate equipment. Our experience last year showed this to be a natural result. As an example: in 1932, a customer made an installation of three cabinet type room coolers connected to one refrigerating machine. In 1933, he added two more rooms. In 1933, another customer made an installation consisting of a 3 hp. machine and four room coolers. Only a few days ago, we were called on to increase his service because he had purchased new equipment with a 7½ hp. compressor which will enable him to cool seven rooms. In interviewing this customer, we found that he was highly pleased with the installation of the previous year and is completely sold on the necessity of providing complete summer comfort for his home. Others could be

mentioned but these suffice to illustrate the point.

In the second group of the market, that is, cooling for profit, a definite change has taken place. In 1933, little thought was given to summer cooling and dehumidifying until the hot weather actually arrived. We have been advised by one distributor in St. Louis that on Feb. 1, he had forty-six proposals outstanding for summer cooling and dehumidifying in stores. Another told us that if he could close 15 per cent of the proposals which he had made, he would consider that he had had a successful season. Distributor's salesmen and our own men report that it is no longer a question of convincing the retail store executive that he should have cooling and dehumidifying. The question now to be considered is what type of equipment is most applicable and what it will cost. The manager of a large specialty shop stated to us the other day that he was surprised at the reasonable cost of the proposals which had been submitted to him. These men have learned that there is a new and useful tool available to them in attracting customers and keeping them in the store to purchase merchandise. Here is a tremendous field for the aggressive salesmen.

Another market in the air-conditioning field, which has not been touched, is the use of mechanically circulated air to increase the adaptability and usefulness of warm air heating. Many years ago, the gravity hot air furnace was developed from the stove. Owing to its limitations, steam and hot water heating became a serious competitor and it was thought that the warm air furnace would be applicable only in the cheapest types of dwellings, but the Warm Air Heating Association, put on the defensive by competition, carried on research and soon found that by the addition of mechanically circulated air it could create a method of heating which lends itself beautifully to complete residential air-conditioning. These mechanical warm air heating systems are now designed to heat and humidify the air in winter, cool and dehumidify in summer, cleanse and circulate the air during all periods of the year. For the summer cooling and dehumidifying, a compressor and the necessary cooling coils are added. The additional installation cost is comparatively small. This type of equipment with its mechanically circulated air gives us a new and additional outlet for electric energy. Tests which have been conducted indicate that in the moderate size home, from three to four hundred kilowatt hours will be consumed during the year by the motor driven fan. When we consider that the average annual residential consumption throughout the country is just over 600 kwhr, it will mean that we have in this device alone the possibility of increasing the energy consumption of the average residence by approximately 50 per cent. Thus the mechanical warm air heating system offers us an opportunity on new residence construction to greatly increase our kilowatt hour sales through the medium of air movement and in addition, each such installation creates a potential customer for the addition of mechanical refrigeration.

One St. Louis company, during a period when new residential construction was at low ebb, made fifty such installations. Another reported that during 1933 they had made thirty-five installations, all of these in new residences.

But new construction is only a part of the picture. There are, throughout the country today, wherever heat is required, literally tens of thousands of gravity type air heating systems which can be converted into air-conditioning systems by the addition of a motor driven fan, filters and humidifying equipment. Of course, many of the installations now in existence cannot be converted either because of design or condition. But even if only 30 per cent of the existing gravity type hot air heating systems can be changed, it offers to us a tremendous potential market. The electric energy consumption of these conversion jobs is identical with the newly designed equipment. It will give to the owner improved heating, clean air, circulation and humidification. On many of these systems, it will be possible to include, at a later date, summer cooling and dehumidification. This market exists, it is up to us to realize on it.

Industrial air-conditioning is the parent of air-conditioning for comfort. It has been established for many years but, in turn, it has been given impetus by its offspring. Many new opportunities are developing for the application of air-conditioning in industry as a result of experience with comfort cooling.

THE METHOD:

With the background established and market conditions favorable in 1934, we are now concerned with the method of selling additional kilowatt hours. "What effective moves can be made in the summer of 1934?" In my opinion, the problem is clearly one of organized and trained man-power. For this year, our plan is to focus the educational process on dealers and their salesmen. No manufacturer could undertake the job alone. The greatest possible national campaign he could put on would be spread so thin locally as to be ineffective. The utility company is the one that should bring educational and promotional pressure to bear locally. The utility's motive is, of course, to build new load but it must recognize that sales of equipment are necessary to accomplish this.

Our plan for promotion of air conditioning in St. Louis this year is built around man-power. We believe that additional sales volume will result from a standardized sales procedure on the part of all distributors and dealers. We propose that the St. Louis Air-Conditioning Bureau bring together for a week's study and training eighty to one hundred dealers and salesmen who will actually be in the field this summer. We intend to prove to these men, by evidence, that air conditioning has actually arrived and that there is a well-defined and growing market. We will show them that a genuine and important service is rendered by air conditioning which affects the health, happiness, ability and profit of the buyer. We will convince them that a correct sales procedure will produce a definite volume of business. The men will then be trained in a simple but effective sales technique developed out of experience so that each man will be able to put over the air conditioning idea in a sound, conclusive manner. The first step will be the proper use of a Sales Visualizer to sell the prospect on the reasons for and the benefits to be derived from air conditioning. The second step will be to secure the prospect's attendance at a practical demonstration of air conditioning. The third step will be to systematically uncover the prospect's needs and requirements so as to be able to suggest to him just the right equipment for his purpose. The fourth step will be to concentrate enough personnel and mail follow-up to close the sale.

In order to support this plan, we will again have a number of exhibits so that more and more people may be brought in contact with the benefits of room cooling and dehumidifying.

We believe that only the utility is in a position to make a complete and im-

partial display of all types of equipment and carry a demonstration of air conditioning direct to all the groups that can be interested.

The value of a central exhibit and demonstration has been thoroughly proven. It provides a place where the prospect may investigate the subject with the maximum of help and information. It provides an impressive demonstration to the public that air conditioning is no longer a distant ideal but an accomplished fact requiring immediate consideration and decision. We again propose to have an exhibit in a hotel which will serve to place the air conditioning idea before business organizations and groups, as well as before the hotel men themselves and the traveling public. An exhibit of room cooling equipment in an apartment building, to which prospects will be brought by appointment, will also serve to show apartment owners and operators a new device for keeping their properties rented. Here prospective renters will see the equipment operating in the exact surroundings in which it is to be used. A suite in an office building will be air-conditioned where, at certain hours, open-house would be observed and building owners, managers and tenants will be brought in by special invitation.

Nothing will so well serve to popularize air conditioning as an exhibit of self-contained, popular priced units in a department store. Seeing this equipment in department stores will emphasize to the public that air conditioning is practical, that prices are down, that operating costs are right and that everyone can now consider himself a prospective purchaser. One of the model homes now being built by a realty company will be used for a demonstration of complete summer and winter residential air conditioning by a central plant.

The idea, of course, is not merely to put air conditioning on display at as many points as possible in the hope that the right people in each case will discover the equipment, but rather to use each display as a focusing point for a specific promotion whereby a selected group of prospects will be talked to in the particular language they understand and will be shown room cooling equipment under the particular surroundings where they will use it.

With man-power and exhibits provided, the further need to create sales volume is to support these activities with the proper advertising. We are planning a book of evidence as a supplement to the Sales Visualizer showing pictures of important installations together with a brief statement of what these have accomplished for their owners. This is intended to pile up evidence of a specific character so that no reader can escape the conclusion that air conditioning is here in a big, impressive and final way. A booklet for general distribution will be provided showing the "A B C's of air conditioning" which will take the mystery out of the subject and will sell air conditioning as the next great improvement in living. This will present air conditioning in terms so simple that the layman can fully understand it.

The position of Union Electric with nothing to sell but service and with a distinct interest in helping each purchaser to secure the most satisfactory installation will be made clear in a letter. This will be mailed to selected retailers, owners of apartments, office buildings, restaurants, hotels and other classifications of prospects as well as to architects and engineers and others who influence the purchase of building improvements. We will provide the necessary follow-up material for each classification in which the facts and arguments, specifically adapted to that classification, are concentrated under one cover.

We believe that newspaper advertising can and will play an important part in reaching prospects because we find them in unexpected places. We have excellent topics for such advertising. We can tell the public what they want to hear; we can tell them that room cooling and dehumidifying is now within the reach of their pocketbook; we can tell them of the lower prices of equipment and simplified installations and of the low operating cost. We can tell them that the investment which they may make in room cooling equipment is justified for improved health, the prevention of depressed and nervous conditions and for higher working efficiency. We can tell them of the many successful installations that have been made in the past. We can advise them that Union Electric is prepared to serve them and give complete information on the subject.

These plans are based on our previous activities in air conditioning promotion.

We believe that the market is ready and that product development has reached the point where organized manpower, carefully manned exhibits and aggressive advertising will result in volume sales of equipment and thereby in increased kilowatt hour sales.

POWER SALES POSSIBILITIES

(Continued from page 108)

this work for every 10,000 commercial meters and will produce approximately $10,000 per year. One manufacturer has just prepared a very complete direct-by-mail campaign for use of the utilities.

Mr. W. H. Stueve, chairman of the Petroleum Electric Power Club and a member of the E. E. I. Industrial Power and Heating Subcommittee, was asked to address you today on the sales possibilities to the petroleum industry but was unable to be present. In his absence I shall endeavor to high spot this activity. In 1933 approximately 900,000,000 barrels of oil were first pumped from its depth, then transported and finally refined. If this work had all been done with electric power it would have required approximately 8,000,000 horsepower of connected load with accompanyng revenue of approximately $75,000,000. At the present time oil well pumping is about 4 per cent motorized, pipe line pumping 20 per cent motorized and refineries about 30 per cent motorized, but only about one-half of such motors are served by utilities so that the utilities are probably selling only about 12 per cent of the requirements of this industry. Here is a vast market and, contrary to popular belief, in view of the vast network of pipe lines, it is spread over 24 states. The last few issues of the E. E. I. BULLETIN have carried items on this subject and comment on the Great Lakes Pipe Line Company job, which was connected in 1933, amounting to 7700 horsepower with accompanying revenue of $400,000 per year.

Last but not least are two new industries. It is estimated that the potential requirements of electrical energy in the brewery industry are about 10 kwhr per barrel of beer. Using Jacob Ruppert's estimate, recently appearing in the press, of 27,000,000 barrels to be produced in 1934 gives a market this year of 270,000,000 kwhr. In the distilleries it is estimated, that in 1934, 1,800,000 barrels of liquors will be distilled. Utilizing the unit figure of 20 kwhr per barrel here is a market for another 36,000,00 kwhr.

Within the past few months prospective power sales present an entirely new picture. However, utilities must be manned to obtain this business. May I suggest that upon your return you check the size of this department and the work it is doing.

WHAT HAS BEEN DONE—AND CAN BE DONE IN BETTER LIGHTING

By M. E. SKINNER

Buffalo, Niagara & Eastern Power Corporation, Buffalo—
Chairman, Lighting Sales Subcommittee, Sales Committee, E.E.I.

Presented at Sales Conference, Edison Electric Institute, Chicago, March 15, 1934

The BETTER LIGHT—BETTER SIGHT program has been a "natural." It has proved to be timely in that all utility companies were concerned with the reduction or cessation of growth of their residential load and were seeking ways and means of bolstering up their income from residential service. Most utility executives who had analyzed the trend of residence consumption had already come to the conclusion that something was needed to revitalize the lighting business and, as a result, when the program was announced it met with an immediate and sympathetic response from the management of almost every company.

The activity was built around a most compelling sales appeal — the interest which each of us has in our eyesight. Our sight is our most precious possession and there is no one whose interest is not immediately arrested when they appreciate that they have abused and, perhaps, run the risk of impairing this most valuable of all of our physical senses.

The activity appealed to everyone because of its simplicity. There were no complicated rules of procedure. There was no set program laid down at headquarters and offered on a "take-it-or-leave-it" basis. The program consisted of calling attention to the timeliness and importance of doing something about the lighting load and reminding everyone that our efforts would be more effective if they were coordinated. The very simplicity of the program provided the essential flexibility so important in any national program to permit its adaptation to the varying problems of different localities and different companies. Each local manager was free to develop the specific program which seemed to him best suited to his local conditions.

Another factor in the success of the program was the availability of two rather basic and fundamental things: First, scientific knowledge of the relationship between light and sight, and second, a convenient direct reading meter which reduced the terms of science to

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something which the ordinary lay mind could immediately comprehend.

The success of the activity has been rather startling and it will be interesting to review some of the high spots which developed throughout the fall and winter months when the program was at its height. There has been an enormous increase in the application of the so-called "new approach" or Sight Meter demonstration method of selling lighting. The use of this new tool, which was initially developed in the commercial lighting field, has been extended for the first time successfully to the home lighting field. The extent of its use in the commercial and industrial field has been materially expanded.

The period of the activity itself witnessed an increase in the number of the small portable Sight Meters in operation in the hands of Lighting Sales Promotion people in excess of 5300. We are advised that the monthly rate of sale of these meters today is at its peak.

The incandescent lamp companies report a phenomenal increase in lamp selling activities. Carton campaigns which had gone into the discard in 1931 and 1932 were resurrected in many companies and many outstanding sales accomplishments were recorded. Many of these have been reported in the columns of *E.E.I. Lighting News*, and a careful reading of the record as reported in this industry newspaper is recommended.

One of these activities which deserves special mention was carried on by a department store in Oklahoma as a part of the cooperative lamp carton campaign sponsored by the Oklahoma Gas and Electric Co. The campaign resulted in the sale of 2.23 lamps per meter which is an exceptionally high figure, but its principal importance lies in the fact that the results were secured by a department store sales activity rather than by a utility selling operation.

Another result of the BETTER LIGHT—BETTER SIGHT activity has been the marked increase in lighting sales personnel. Even in the prosperous period of a few years ago quite a substantial number of companies carried on only a limited lighting sales program. Under the stress of the depression many of the companies which have always maintained a substantial amount of activity in this field had sharply curtailed their personnel. The BETTER LIGHT—BETTER SIGHT activity served to focus the spotlight of attention on the importance of the lighting load, and as a result of executive interest Lighting Sales Personnel was materially expanded during the past fall and winter. Conservative estimates indicate that there are probably twice as many trained people now engaged in some form of lighting promotion as there were in the field a year ago. This same interest extends beyond the utility companies, and there are many instances where electrical wholesalers, contractors and dealers have added to their forces. As a result of the increased business enjoyed by the manufacturers of lighting equipment, there has also been a substantial increase in the number of men employed in their field organizations.

Other industries have shown a marked interest in the BETTER LIGHT—BETTER SIGHT program. Better sight in itself

involves a partnership between eyes and light so that those interested in eye health and the optical correction of refractive errors were quick to indicate a sympathetic interest with our program. The production of better light involves quite a number of elements which are not directly related to the electrical industry such as, for example, the paint industry. It is well known that the effective amount of light available from a good lighting system may frequently be increased by a substantial amount simply by repainting walls and ceilings so as to increase the reflection factor. Such an operation also increases the quality of the light by improving the diffusion. Progressive paint manufacturers have been quick to sense the increased interest in lighting and the part which better painting could play in bringing about better lighting.

One manufacturer has actually brought out a new line of paint called *Better Sight Paint* and has expanded our slogan into *Better Paint—Better Light —Better Sight*. Several paint manufacturers have equipped their sales representatives with Sight Meters and have instructed them in a method of sale which relies upon a lighting demonstration to sell paint. It is difficult to estimate the benefits to the electrical industry which will result from this increased consciousness in the importance of better light on the part of the paint industry. It is also rather convincing evidence as to the increased public consciousness in the importance of better light when the paint industry finds that its sales appeal is most effectively aimed at this particular public interest.

As mentioned heretofore, those interested in eye health and in the correction of refractive errors have shown a marked interest in our program. Some of this interest is what might be called "professional interest" on the part of that division of the medical profession which specializes on diseases of the eye and eye health. There is also a commercial interest in our program on the part of those engaged in the correction of refractive errors including the manufacturers of glasses; those interested in testing eyes and in prescribing and furnishing glasses. At the recent convention of the New England Council of Optometrists held at the Statler Hotel in Boston early in March the subject of prescribing proper lighting occupied a foremost place in the program of the convention. A new technique worked out by Dr. Hamilton of Providence, R. I., was demonstrated and described. Under this technique and with the new equipment which has been developed for it an optometrist can insure that his test is being conducted under uniform and controlled conditions whereas heretofore eyes have frequently been tested with what might be described as a "rubber yardstick." As a part of this technique the optometrist furnishes a folder which not only indicates the footcandle intensity at which the eyes were tested but furnishes the patient with a means of checking the lighting conditions under which they should use their eyes when equipped with the new glasses. It has even been proposed that the optometrist place on sale a new line of portable lamps which have been specially designed to produce a very high quality of reading light and the intensity which will insure comfortable reading conditions so that while the patients are in a mood to give the subject proper attention they are able to secure a more or less complete solution to their problem.

The Pennsylvania Optometric Association has also shown a marked interest in this program and has formed a bureau for eyesight conservation. That association is extremely interested in working closely with the electrical industry in developing interest in this subject. Still another evidence of this interest is the survey of rural schools which is now being conducted throughout the entire state of New Jersey. Not only is the visual acuity of the child being tested, but coincidentally a complete survey of all the school rooms is being made to determine the lighting conditions.

Probably the most spectacular result outside of the lighting industry was the Certified Lighting program announced by the Statler Hotel organization. Here was a case where a hotel organization sensing the public interest in the subject of lighting has capitalized on our program to enhance its commercial prestige and to increase patronage at its hotels. Its program has been described in detail in *Lighting News*. As their advertising campaign developed it became evident to everyone that it is one of the most comprehensive and thoroughly worked out promotional programs which the industry has witnessed. Naturally, the hotel organization itself has become extremely light conscious, and the effect on the guests who occupy the 7700 odd rooms in the chain of Statler hotels will be most profound.

There has been a tremendous surge of new selling ideas as a result of the BETTER LIGHT — BETTER SIGHT activity. This might have been anticipated for the campaign itself was so designed as to stimulate local thinking and many original and even startling ideas resulted. The story is told of one individual who upon registering at a hotel discovered that the lighting in his room was atrocious. He thereupon engaged the room on the floor immediately below and went to a neighborhood store where he purchased or borrowed sufficient incandescent lamp bulbs and portable lamps to properly light the second room. After he had the room arranged he invited the manager to view the room which he had first engaged and pointed out to him the deficiencies in its lighting. He then took the manager down one flight and showed him an identical room properly lighted. The effect on the hotel manager was instantaneous, and he immediately made arrangements to survey lighting conditions throughout the hotel, and there is every reason to believe that by this time the lighting conditions in his guest rooms have been materially improved.

Another rather interesting campaign which was brought to light by this activity was one aimed at coal yards. During the depression they have suffered serious losses from theft. In some cases the conditions became so bad that the thieves would cut through the protective wire fence and actually back in a truck. By calling to the attention of the coal yard operators the opportunity of reducing such theft by properly lighting the yard with outdoor flood lighting equipment, substantial sales of this type of equipment were made to the great satisfaction of the yard operators. Some of them found quite to their surprise that in addition to the insurance protection the new yard lighting speeded up yard operations in the late afternoon to the point that the resultant economy in itself justified the expense.

It is felt that a number of important lessons can be drawn from the success of this activity. In the first place it is very evident that the dissemination of accurate scientific knowledge about a subject is an important prerequisite to sales. We now have much accurate scientific knowledge in regard to the relationship between lighting conditions and our ability to see. There has been ample evidence throughout the activity that as soon as people appreciate this important relationship they become intensely interested in lighting conditions around them and in

seeing to it that they are corrected wherever they are found to be inadequate. The public appreciation of this new knowledge and information when it is properly presented has been very marked. We have the statement of a prominent Home Service Director that in no single instance in connection with the home lighting calls made under her direction has the customer failed to exhibit marked appreciation and enthusiasm. She mentions a number of cases where the gratitude of the women and their appreciation for the help given in improving lighting conditions in their homes has been very touching.

Another lesson of importance which has been gained from this activity is the desirability of having a simple central idea as a rallying point for any national program of activity. With simplicity comes flexibility and whatever success the BETTER LIGHT—BETTER SIGHT activity may have had is in large measure due to these two factors.

The BETTER LIGHT—BETTER SIGHT activity was not intended to be a flash in the pan, rather it was hoped that it would be the beginning of an increasing and continuing appreciation of the importance of the lighting load. A great deal has already been accomplished during the past season, but it would be a shame if these gains were not consolidated and extended by a continuation of the program. Fundamentally, the activity has been an educational one, teaching people the important relationship between light and sight and it takes time for the public at large to absorb such information. We should capitalize the work which has already been accomplished and the effectiveness of the organization which has been built up during the past year. This organization is steadily expanding as the weight of evidence persuades skeptics within our own industry to join the ranks. Manufacturers of lamps and lighting equipment are planning expanded programs of advertising and promotion for the coming year.

Evidence of the expanding program of the manufacturers is readily disclosed by their program of national advertising both to the trade and to the public. The opening gun of the lamp companies' program was fired in the March 3 issue of *The Saturday Evening Post* when both General Electric and Westinghouse took full pages to tell the reading public the story of BETTER LIGHT—BETTER SIGHT. Other industries are tying their programs more and more closely to the theme of BETTER LIGHT—BETTER SIGHT.

A good illustration of the trade paper advertising is the special March Lighting Issue of the magazine *Factory*. Here massed in a special advertising section is the story of BETTER LIGHT—BETTER SIGHT as applied to an industrial enterprise. Almost every phase of the industrial lighting problem is represented by the advertisers in this issue, and the story itself is beautifully told in a series of five special articles.

One fact which has been brought out very forcibly during the past year is the low standard of portable lighting equipment when judged by its ability to provide good seeing light. The committee proposes to undertake the improvement of this portable lighting equipment at the source and in cooperation with the Portable Lamp and Shade Division of N.E.M.A. Steps are under way to see that by fall of this year there will be lines of portable lamps on the market which will truly qualify as BETTER LIGHT—BETTER SIGHT lamps. A special subcommittee is now drafting specifications and requirements which portable lamps should meet in order to qualify, and the lamp manufacturers, realizing the advantage to them in having the more substantial support of the utility industry, have promised new lines of lamps conforming to the specifications as soon as they can be developed.

The BETTER LIGHT—BETTER SIGHT Committee is now working on a program of activity which will be inaugurated early in the fall and which will provide light and power companies with another inspiring program about which they can build their local lighting activities.

PROBLEMS OF COMMON INTEREST

(Continued from page 107)

going to be forced on industry as a whole in the United States.

All credit should be given to the Administration and to the wonderful work that has been accomplished through the NIRA, which has achieved what seemed an almost impossible result,—but the tendency has always been when you start a thing like NRA that it will continue to grow as a mushroom and will go further and further into business relations of the country. There are bills in Congress today, and others suggested, that in my opinion will work out to the greatest detriment of the country as a whole and retard prosperity. Therefore, it behooves us all to use the best brains bestowed on us to get our respective houses in order and be prepared with facts and figures—so as to be able to counteract any bad legislation that may be proposed in the future, and be able to present a p i c t u r e that can and should be exceedingly constructive to the Government.

PRESCRIBING FOR CRITICAL POWER CASES

(Continued from page 110)

Finally, let me say that I believe that careful consideration should be given to the man power of our power sales organizations. If each company would make a careful analysis of its power customers, classifying them according to their size and annual revenue, and also according to competitive power possibilities, and then set up a schedule of calls which should be regularly made on these customers, I think it would be found in many cases that the members of the power sales department would have to work night and day in order to follow the schedule. In dealing with this problem we might profit from the experience of the larger electrical manufacturers who have in some instances set up schedules of contacts for various sizes of customers. If this is done we shall be reasonably assured that each of our customers is given the proper amount of personal contact and attention which he requires, which, after all, will contribute most to effectively meeting serious competition.

PACIFIC COAST PROSPECTS

(Continued from page 101)

the friendship and purchases of those classes to whom it is extended.

Conclusion

I have attempted to outline our common problem—the sale and disposal of an excess of power which has reached alarming proportions.

We on the Pacific Coast are making a determined effort on two fronts—namely, the building into our Dealer Cooperative effort the real merchandisers of electrical appliances, such as the larger department stores, furniture and hardware stores, by working with them through a Dealer Organization: Second, the making possible of the sale of our product through inducement rates that cannot but help to build volume and improve Public Relations.

We should gladly accept the challenge of the T.V.A. or any other similar Government experiment, by keeping out in front in our rightful place of leadership where proven methods have placed us. This leadership can only be maintained by being alert to the changing conditions of the times.

WE can if we *WILL*, and in the language of our naval hero, let's adopt the motto—

"DAMN THE TORPEDOES—
FULL SPEED AHEAD."

LOAD BUILDING

With Special Reference to the Small User

By DAVIS M. DeBARD

Stone & Webster Service Corporation—Chairman, Table Cookery Program

Presented at the Sales Conference, Chicago, Ill., March 15, 1934

We have been using every means at our command during the last few years to add profitable load to our electric lines. The facts are, only increased sales can compensate for the rate cuts that have been made and for the increases in operating expenses and taxes that will have to be met during the next few years.

The urge to rapidly increase energy output for residential consumption has influenced operating companies to center attention on the major load builders. An inquiry was made of sales executives representing the majority of larger systems in this country and the information obtained was as follows:

Approximately 80 per cent were still retailing electrical appliances. Sixty per cent of those selling were promoting a full line of electrical appliances and the balance, 40 per cent, were pushing load builders only. It is gratifying to know that many utilities have continued to do a complete load building job both with profit to themselves and to the dealers of their community. There seems to be no substitute for utility leadership in promoting and selling all types of electrical appliances. During the last few years notable success has been attained with the promotion of the electric refrigerator. This success is due in no small degree to the planning and assistance rendered the operating companies and the dealers in the field by the Electric Refrigeration Bureau. Results of this bureau are outstanding. They have been widely published. Last year's record of more than 1,000,000 machines stands out as a crowning event of the Bureau.

Just one word of caution. Let us not feel for one moment that the electric refrigeration promotional job has been completed and that little or no advertising sales effort is needed to keep the sales curve moving upward on this, one of our best load building devices. We might be surprised, should we slacken our effort, to find that a refrigerator using other fuels had taken our leader's place.

The electric range had its maximum

MR. DeBARD

yearly sales in 1930, the manufacturers selling more than 180,000 units that year. Since that time yearly sales have decreased. Last year the total sales were approximately one-third of the 1930 record. The National Cookery Council never had sufficient funds to do an advertising and promotional job commensurate with the value of the load to be gained. We may as well look the situation straight in the face. The idea of electric cooking has not been sold to any great extent in the Eastern part of our country. We know the surface of the domestic market has not been scratched. We know this field offers the electrical industry the most attractive type of profitable load.

A great deal of thought is being given to this sales problem. I believe every commercial manager will welcome the day when sufficient funds are available for the advertising and promotion of the complete electric kitchen of which the range is such a vital part. National publicity is carried on not only by electric manufacturers but by the allied trade such as the linoleum and metal manufacturers who are spending considerable amounts to popularize the new and attractive kitchen.

Electric water heating has been growing in favor for the past several years but up until six months ago sales had not been increasing at a very rapid rate. Records are available of some 69 utility operating companies who have established off peak electric hot water heating rates. Some of the newer forms are combinations of flat rate and meter rate such as the new rate established by the Niagara Hudson system. Every indication points toward great acceleration of the sale and customer acceptance of electric hot water heating. Every sales manager should formulate plans suitable for his particular territory to promote this profitable load building device.

Some utility men, of which I am one, advocate the rental or trial plan in certain communities for increasing the saturation of electric ranges and electric water heaters. The offer of proving to the customer that these devices can be operated economically and render the excellent service claimed has done much to popularize these devices in the districts where the plan has been tried. Experience to date leads many to believe the trial method will increase in popularity.

When it is possible to place on the lines of a utility as many units in four months as was possible in twenty-eight preceding months, through the use of a two-year installment plan, and when to date returns for all reasons have not exceeded six units out of every hundred installed, and when saturation was increased 4¼ per cent, making total saturation over 10 per cent, I, for one, feel there is merit in the trial rental plan. In the vernacular of Western prospectors, "Thar's gold in them thar hills."

We have discussed the refrigerator, the range and the water heater. What do these mean in annual kilowatt hours together with lights and other miscellaneous appliances which go to make up the complete electric home. One utility made both a survey and an analysis of the residential customers and secured the following data: 367 homes on their lines using full electric service, having the three major devices, lights, and the majority of useful smaller appliances

averaged 6,465 kilowatt hours per year. 1,687 customers using lights, miscellaneous appliances, refrigerator and the range averaged 3,272 kilowatt-hours per year. 70 customers using lights, miscellaneous appliances and water heater only average 3,258 kilowatt-hours per year. There were 2,195 customers using lights, miscellaneous appliances and electric range only. These customers averaged 2,295 kilowatt-hours per year. This analysis covers such a substantial number of customers that I feel this data is of particular interest and value in showing average results that may be expected by complete electrification of the home.

So much for the three major popular devices, each of which have had their proper share of advertising and promotional effort. When we analyze our market we find that less than 50 per cent of our residential customers are prime prospects for these major devices. An analysis by the Statistical Department of the Edison Electric Institute of the energy used in homes in 1929 brought out that 58 per cent fell below the line of "minimum comfort" in living. Of this number approximately six million used an average of 20 kilowatt-hours or less per month and another four million used less than 30 kilowatt-hours per month. The same analytical survey indicated that five million two hundred fifty thousand used from 30 to 50 kilowatt-hours per month, and that three million households used over 50 kilowatt-hours monthly. This group included the well-to-do and wealthy classes.

In 1929 the average annual use of approximately thirteen million four hundred fifty thousand customers was 268 kilowatt-hours annually.

A more recent analysis of domestic consumer use in the larger cities indicates again that 45 per cent used less than 30 kilowatt-hours per month. In another city 52 per cent used less than 30 kilowatt-hours per month. That is, we are faced with the cold facts that approximately 50 per cent of our residential consumers use less than 360 kilowatt-hours annually.

A leading New York firm of cost accountants are responsible for the statement that upward of nine million residential customers are paying from $4 to $6 per year less than actual cost to serve plus a fair return.

A survey recently made for one of our operating companies by an outside agency, covering 26,000 families reveals the following income results. 500 families in Class 1, 1600 families in Class 2, 5400 families in Class 3, and 18,500 families in Class 4. The predominance of families in the low income group is somewhat explained by this being a manufacturing town, but I believe we are safe in assuming that from such statistics as are available that more than 50 per cent of our residential customers would be recorded in the low income group.

A summary of the facts are that 50 per cent of our customers use less than 360 kilowatt-hours per year. That 50 per cent are in Group 4 of the income class and only approximately 50 per cent are prime prospects for the major load building devices. Therefore, we must acknowledge that in our load building job in the home we cannot depend upon any one device or group of devices. We have too many classes of consumers and too wide a variation in spending margins to expect that putting all our efforts solely on the refrigerator, the range, or the water heater would give us the final answer. Statisticians tell us that 40 per cent of our residential revenue is produced through the sale of lighting. We must increase this valuable load which is now being given attention, and we must make an appeal to that great class of small non-profit consumers to use more service through the small appliances which they can afford to buy.

For this reason the National Residential Sales Committee concluded that this was an opportune time for the industry to turn its attention to the group of table cookery appliances which give a useful service in the kitchen and dining room. A customer can afford to operate most of this cookery group on the middle steps of our inducement rates.

Chairman Whitwell, of the Sales Committee, in a recent letter to all Chief Commercial Executives said:

"Small appliances have not received much attention recently from electric utility companies. And yet they can be made to play a most important part in increasing electricity use by the low consumer who represents more than half of our customers.

The use of one or two small heating devices can easily make profitable many of your low-use customers now served by your company at a loss. An activity *now* on small appliances will put to work many pieces of equipment shelved during the depression years or will replace those, now idle, that should have been replaced months ago.

"The choice of appliances to be featured is, of course, yours. The important thing is that small heating appliances—the casserole, the hot plate, the percolator, the toaster—mean present profits to you. Or if you wish to add the mixer or the iron, that is entirely up to you. The main point is to do something actively, now, in your community."

Let me emphasize that this will be a cooperative program for stimulating sales and advertising activity locally on the complete use of household table devices which are so serviceable in the kitchen and dining room. Your dealers should welcome this program.

About a year ago the dealers in one large community asked their central station to go back into campaigning of table devices. The dealers observed their sales had declined due to the lack of utility promotional work. The company granted the dealer's request and have been running monthly campaigns on small appliances with splendid results.

Quoting from a report received from a merchandising manager whose utility is not merchandising at the present time:

"A general comment concerning the retirement of utility from merchandising, comes from dealers to the effect that the utility leadership is being missed in the merchandising field. Apparently this leadership tended toward maintaining a high quality level in appliance sales as well as a closer adherence to list prices. The utility competition which the dealer in some instances preferred to be rid of, was succeeded by a cut-price, lower quality competition on the part of some department stores, hardware stores, jewelry houses and in a few instances new-comer electric shops without the appreciation of the place, quality and service, should play in electric appliance sales."

It is the Committee's sincere wish that utilities take leadership locally and join in cooperative endeavor with manufacturers, wholesalers, and the trade in general, in selling electrical appliances. The slogan adopted by the Committee is "Electric Table Service Saves," which is expressive and will make an effective advertising theme. The duration of this campaign is for six months beginning in March.

Chairman Whitwell appointed a small committee for quick and effective action to carry through a Table Cookery program built up somewhat along the lines of the Lighting Program. This committee consists of: Mr. C. E. Swartzbaugh, president, Swartzbaugh Mfg.

Co., and chairman of the Domestic Appliance Section of NEMA; Mr. R. W. Turnbull, General Electric Company; Mr. F. R. Kohnstamm, Westinghouse Electric and Mfg. Co., and Mr. C. E. Greenwood of our general office staff. I have the privilege of being chairman of the committee.

Like the Lighting Program, we are not to have any national advertising; we are not going to have a national "campaign"; we are not going to attempt to lay down sales plans, nor influence you on the time for selling and promoting these table devices. We are going to urge utility companies, department stores, hardware stores, furniture stores, and others selling small devices to actively engage in the promotion or selling, or both, of the small quality heating and motor driven devices generally used in the kitchen and dining room.

By quality, I mean sponsoring devices that give pride of ownership, continuing customer satisfaction, and price at levels which will return sufficient dollar margin to secure the interest and effort of department stores, dealers, and others in their promotion.

Electric tableware for the past three years has been taken for granted. Many power companies have given up the sale of the smaller appliances; others have given up advertising them, sales have dropped appreciably during the past two years, and I believe with the drop in advertising, many homemakers have lost interest in their use.

This is a joint effort with the manufacturers. They are contributing equally with the Institute to the expense of this program through individual subscriptions.

A new publication called *Table Cookery Topics* will be distributed each month and we expect the issues to average at least 15,000 in number. We are hopeful that utility companies will distribute to leading dealers in the community. *Table Cookery Topics* will be in tabloid size and printed in rotogravure process so that it will be distinctive. It will carry information about the program, sales ideas, and news on promotional effort. A copy will be sent gratis to each commercial executive and additional copies will be furnished at 5c each in lots of 25 or at 3c each in lots of 100. We will have wide distribution through wholesaler, manufacturer, and utility channels.

Of course we have a slogan and design, "ELECTRIC TABLE SERVICE SAVES." I think you will agree this slogan is expressive from various viewpoints.

What I would ask you to particularly bear in mind is that this program is broadly cooperative. There is no intent to promote campaigns that will arouse any antagonism on the part of the trades, in fact they have all been invited to join nationally in the program through contact with their national associations. We expect that all sales and promotional programs in local communities will be cooperative.

May I reiterate—

1—Utilities have not given proper promotional effort to the development of small consumers' load during the last few years.

2—Small appliances offer a means of increasing profitable load with more than 50 per cent of our customers.

3—Cooperative endeavors will be welcome by all branches of the industry.

4—The avenues of good will and profitable load are open to you when promoting small quality appliances.

5—Tackle this job in your own efficient, individual way. We'll be glad to record your monthly accomplishments in TABLE COOKERY TOPICS.

6—May I ask, on behalf of the Edition Electric Institute, your wholehearted support in making this effort to promote Table Cookery during the next six months a big success.

EDISON ELECTRIC INSTITUTE

TABLE COOKERY TOPICS

ELECTRIC TABLE SERVICE SAVES

IN COOPERATION WITH ELECTRICAL MANUFACTURERS

Vol. 1, No. 1 Sponsored by EDISON ELECTRIC INSTITUTE, 420 Lexington Avenue, New York City April 1, 1934

Utility Leaders Voice Approval Of the Program

Leading Executives Respond to President Cortelyou's Letter with Promises of Enthusiastic Support

What some of our leading utility executives think about the Table Cookery Program is expressed in the following excerpts from letters received by George B. Cortelyou, President of Edison Electric Institute:

F. S. Finley, Jr., President, West Penn Electric Co., Pittsburgh, Pa. "I am heartily in accord with this particular phase of the Institute's activities, and recognize that it is dependent to a large extent upon the full cooperation by member companies. I am therefore asking the merchandising and sales promotion departments of our operating companies to give careful consideration to the proposal at their next meetings, which are to be held within the next ten days. As part of our sales program for the year, you may be assured of participation on the part of our companies."

Robert Montgomery, Vice-President, Louisville Gas & Electric Co., Louisville, Ky. "We are particularly interested in your letter of February 23rd because approximately one-half of our residential customers use less than 30 KWH of electricity per month, and as these small users are mostly people with very small incomes, they are not, for the most part, financially able to purchase the more expensive major appliances; therefore, if we expect to increase their consumption, it is up to us to promote the sale of lighting and small labor-saving appliances having utility and at the same time representing a very low first cost. This is a problem to which we are giving considerable thought at the present time as we have just made a reduction in our domestic electric rate. The new rate, which went into effect the first of this month, is as follows:

"First 40 KW. hr. per month at
3c net per KW. hr.
All over 40 KW. hr. per month
at 1c net per KW. hr.
Minimum monthly bill, 60c."

F. S. Young, Vice-President, Public Service Electric & Gas Co., Newark, N. J. "We are heartily in favor of the Electric Table Cookery Program and we will be glad to actively cooperate."

R. E. Lander, General New Business Manager, East Tennessee Light & Power Co., Bristol, Tenn. "We are heartily in accord with the program to be sponsored by the Edison Electric Institute designed towards developing minimum bill customers through the promotion of an Electric Table Cookery Program, that properties will cooperate in every way possible."

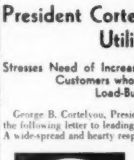
John F. Parkes, President, Brooklyn Edison Co., Brooklyn, N. Y. "There certainly seems to be splendid opportunity for very sane commercial development along the lines of the Electric Table Cookery Program set forth in your letter of February 23rd, 1934. Conformably with your request, I am glad to express an interest in the plan and the belief that Brooklyn Edison Company can very substantially participate in the suggested program."

President Cortelyou Appeals to Utilities for Their Support

Stresses Need of Increased Revenue from Small Domestic Customers who Cannot Purchase Major Load-Building Appliances

George B. Cortelyou, President of Edison Electric Institute, has sent the following letter to leading utility executives throughout the country. A wide-spread and hearty response has since been received.

"February 23, 1934



GEORGE B. CORTELYOU

"To Utility Company Executives:

"At the suggestion of the Chairman of the Sales Committee, I am writing to urge your interest in another sales program—The Electric Table Cookery Program—developed in cooperation with the Domestic Appliance Section of the National Electrical Manufacturers Association, to encourage the greater use of the small heating and motor-driven devices in the household.

"On July 1st of last year I brought to your attention a proposed National Lighting Program to be sponsored by the Edison Electric Institute and to be conducted under the auspices of our Sales Committee. The response to this invitation, as evidenced by intensive coordinated local promotion of better lighting, has produced very successful results. This new Program following immediately after the Lighting Program should be similarly productive.

"A special committee in charge of the new Program has chosen as the slogan—'Electric Table Service Saves.'

"The need of increased revenue from the smaller domestic consumer, especially the 'non-profit' consumers, who represent a very substantial group, is apparent. These consumers have limited spending margins and cannot be counted upon as immediate purchasers of the more expensive major load building appliances. I believe a promotional effort to reach this class merits your hearty support.

"An important objective of this National Program will be the effective building, over a six months' period starting March 1st, of local coordinated sales activity on small appliances. This will constitute a softer step in the recovery and building up of revenues from the domestic consumer.

"I hope that you agree as to the potential advantages of these coordinated sales programs and that you will cooperate in this new undertaking as you did in the Lighting Program. For the guidance of the officers of the Institute I should appreciate an expression of your interest in this plan.

"Very truly yours,
(Signed) "GEORGE B. CORTELYOU,
"President, Edison Electric Institute."

Manufacturers Lined Up for Plan of Concerted Action

National Activity Offers a Golden Opportunity for Every Factor in the Electrical Industry, Says Swartzbaugh

C. E. Swartzbaugh, Chairman of the Domestic Appliance Section, National Electrical Manufacturers Association, says:

C. E. SWARTZBAUGH

"Primarily, all competition is between industries, not between units of an industry. It may safely be said that the electrical industry's chief competitors for a share of the consumer's dollar are other major industries of which the automobile, clothing, furniture and cosmetic industries are examples.

"This is as true of the utility which produces kilowatts as it is of the manufacturer who fabricates the appliances to use those kilowatts or the retail stores selling those appliances.

"Manufacturer, utility, jobber and retailer have, or should have, a common interest, therefore, in any program designed to make the consumer 'appliance conscious', or having possibly ten of us doing. Such a program should be a meeting ground for the open minds of the electrical industry.

"Except for the iron, small appliances—the lower priced units as compared to the refrigerator and the range—have not fully registered as set on the minds of the consuming public. They have never, generally speaking, had that one essential something required to put them over in big volume, namely, the sustained, wholehearted support of the top executives of the industry's utilities. The exceptions to this statement prove the point. Manufacturers are hopeful this situation will change.

"For by no stretch of the imagination can most wired homes in this country even be considered prospects for the major appliances—at least not while the average per meter consumption in the United States is less than 600 KWH, nor so long as the average annual income is less than $1,000.00.

(Continued on Page 3)

The National Electric Table Cookery Program Off to a Flying Start

Another Cooperative Movement to Encourage the Sale and Use of Small Appliances Gets Under Way

Green lights ahead! Right of way! Veteran engineer George Whitwell at the throttle and the wheels are already rolling!

Good! Now, that we're organized, let's find out where we are going and why.

PRACTICAL LOCAL PLAN ALREADY IN OPERATION

There is a popular song, "Did You Ever See a Dream Walking—Well, I Did." We've been telling you that if the central station and dealers could just get together on this table cookery thing they could make the dream of increased sales and load come true. Well, here it is in the flesh—not just a plan but one that is on the job and working.

The Utility Management Corporation, operating a large number of widely distributed properties, features each year what it calls its "Minor Monthly Electrical Specials." A considerable amount of promotional advertising is done and through its Dealer Relations Department, the corporation has succeeded in interesting jobbers and local dealers in joining with its program.

The schedule for 1934 is as follows:

January—Heating pads and electric irons.
February—Waffle irons and food mixers.
March—Toasters.
April—Percolators and space heaters.
May—Electric irons.
June—Bridal gifts.
July—Fireless cookers.
August—
September—Waffle irons and food mixers.
October—Space heaters.
November—Toasters, percolators or combination of the two.
December—Christmas gifts.

Last year one of the corporation properties found that there were nineteen jobbers calling upon the electrical trade in its territory. The New Business Department called a meeting of those jobbers, explained to them the advantages of all going together on the sale of minor appliances and worked out a schedule covering each month of the year. For January and February all agreed to feature their own makes of waffle irons and food mixers and to call upon their dealers to get them to tie in with the activity. The utility then prepared the data for each jobber concerning his special offer and furnished enough copies so that the salesmen would have sufficient quantity of literature to leave with each dealer upon whom they called. Through this plan the nineteen jobbers very quickly carried the story to all the dealers in the territory, with the result that wide participation was secured and throughout February in all the towns in that area the public saw in every dealer's window a special display of waffle irons and mixers.

(Continued on Page 2)

To put it simply, we want to get a lot of people to buy new table appliances. We want them to use these appliances after they buy them. We want a lot of people who already have table appliances to bring them out, dust them off and use them.

We want this result because it is good for the makers and sellers of small appliances. We want it because it will build load for the utility companies. We certainly would not dare to try to bring it about if it were not also good for the public. That is that—now, how do we get from here to there?

Davis M. DeBard and his committee started the ball rolling. As chairman of the Residential Sales Sub-committee of the Edison Electric Institute it became clear to him that no concerted action was being taken to promote the sale and use of small appliances and that there was "gold in them that hills" if we could just all work together to extract it.

Off to a Good Start

Mr. DeBard and his Small Residential Sales Committee members, prompted by the conspicuous success of the "Better Light—Better Sight" program, as reported to the Sales Committee, of which George E. Whitwell is chairman.

The Sales Committee listened intently, said, "It looks good to us," and authorized Chairman Whitwell to appoint a small committee to put it over. They cordially enlisted the cooperation of the Domestic Appliance Section of the National Electrical Manufacturer's Association and fast-moving Chairman Whitwell at once appointed a special committee to supervise the program.

This committee has as chairman D. M. DeBard, who guides the commercial activities of Sears & Webster Service Corporation, and is fortunate in having as members C. E. Swartzbaugh, President of Swartzbaugh Manufacturing Co., likewise chairman of the Heating Device Division of NEMA; R. W. Turnbull, General Electric Co.; F. R. Kohnstamm, Westinghouse Electric & Manufacturing Co., and C. E. Greenwood, Commercial Director, Edison Electric Institute.

Enlisted for the Duration

We have excellent leadership. The next question is, do we have the power to back up that leadership? Yes—because two score of the leading manufacturers, including the entire membership of NEMA's Domestic Appliance Section, have joined the movement en masse. Yes—because a large number of the util-

(Continued on Page 2)

First page of first issue of "Table Cookery Topics"—greatly reduced

REFRIGERATOR SALES SET NEW FEBRUARY RECORD WITH TOTAL OF 82,439 UNITS

National Quota for First Two Months is Exceeded by 16.4 Per Cent—Spring Refrigeration Shows Under Way

The Electric Refrigeration Bureau's tabulation of February refrigerator sales in the United States reveals a new record for that month when all previous highs were shattered with the truly amazing total of 82,439 unit sales. This total compares with 35,394 sold in February last year and the previous record of 53,693 set in February, 1931, and represents 136 per cent of the Bureau's February quota of 60,630.

Sales in the first two months of the year were 117,651 units, or 116.4 per cent of the quota for the period. This is an impressive record in itself, but all the more so when considered in comparison with last year's figures for the corresponding period. Then the quota was only 80,217 units, as against 101,050 for the first two months of this year. Yet the two months' sales were only 67.5 per cent of the quota, or 54,149 units. This year's figures, therefore, would seem to indicate that the most optimistic forecasts of another record-breaking year for electric refrigeration will be amply fulfilled.

At the end of the two-months period thirty-five States showed quota realization percentages of better that 100 per cent. Kansas and Oklahoma were far ahead with 230.9 per cent and 224.7 per cent, respectively. South Dakota, Georgia, Missouri, Alabama, West Virginia, Texas and Arkansas followed in order. In the matter of total unit sales, the three most popular States, New York, Pennsylvania and Illinois, led all the others.

As was the case throughout last year, the seven States comprising the South Eastern Division were most uniform in their quota realization percentages, the figures ranging between 123.3 per cent for Florida and 190 per cent for Georgia. The Southwestern Division, however, had the highest divisional percentage, 164.5, with the Middle West Division second with 162.3 and the South Eastern Division third with 155.2.

The New England and Pacific Coast Divisions were the only ones failing to top their division quotas, although both showed a decided percentage gain for February over January.

(Continued on page 142)

ELECTRIC REFRIGERATION BUREAU
SALES—HOUSEHOLD MODELS ONLY—TWO MONTHS 1934

	YEAR'S QUOTA	TWO MONTHS' QUOTA—10%	ESTIMATED TOTAL SALES	% QUOTA REALIZATION
New England Division				
Connecticut	19,243	1,924	1,532	79.6
Maine	7,899	790	567	71.7
Massachusetts	49,224	4,922	4,020	81.6
New Hampshire	5,095	510	275	53.9
Rhode Island	8,074	807	907	112.3
Vermont	3,305	331	239	72.2
Eastern Division				
Delaware	2,054	205	307	149.7
Maryland & D. C.	20,319	2,032	3,340	164.4
New Jersey	49,202	4,920	4,781	97.1
New York	154,788	15,479	17,196	111.0
Pennsylvania	86,678	8,668	11,386	131.3
East Central Division				
Kentucky	11,293	1,129	1,713	151.7
Ohio	64,710	6,471	7,288	112.6
West Virginia	7,970	797	1,388	174.1
Middle West Division				
Iowa	19,012	1,901	2,189	115.1
Kansas	14,127	1,413	3,264	230.9
Missouri	27,824	2,782	4,860	174.6
Nebraska	9,783	978	1,174	120.0
Pacific Coast Division				
Arizona	2,916	292	421	144.1
California	78,695	7,870	4,670	59.3
Nevada	714	71	50	70.4
North West Division				
Idaho	3,303	330	469	142.1
Montana	3,550	355	518	145.9
Oregon	10,010	1,001	1,497	149.5
Utah	4,863	486	424	87.2
Washington	18,025	1,803	1,470	81.5
South Eastern Division				
Alabama	7,187	719	1,254	174.4
Florida	9,790	979	1,208	123.3
Georgia	8,309	831	1,579	190.0
North Carolina	10,945	1,095	1,539	140.5
South Carolina	4,358	436	690	158.2
Tennessee	9,783	978	1,554	158.8
Virginia	11,031	1,103	1,711	155.1
Great Lakes Division				
Illinois	77,150	7,715	8,341	108.1
Indiana	28,271	2,827	3,692	130.5
Michigan	44,387	4,439	4,938	111.2
Wisconsin	26,180	2,618	2,101	80.2
North Central Division				
Minnesota	19,794	1,979	2,009	101.4
North Dakota	2,511	251	260	103.5
South Dakota	3,217	322	616	191.3
Rocky Mountain Division				
Colorado	8,420	842	942	111.8
New Mexico	1,388	139	202	145.3
Wyoming	1,311	131	216	164.8
Southwestern Division				
Arkansas	4,554	455	776	170.1
Louisiana	8,242	824	792	96.1
Mississippi	3,568	357	329	92.1
Oklahoma	10,531	1,053	2,367	224.7
Texas	26,903	2,690	4,590	170.6
Totals	1,010,506	101,050	117,651	116.4

EXPERIMENTAL DEVELOPMENTS IN CONVERSION ELECTRIC WATER HEATER EQUIPMENT

By E. A. BRAND

Buffalo, Niagara & Eastern Power Corp., Buffalo, N. Y.

Presented at Sales Conference, Edison Electric Institute, Chicago, March 14, 1934

An investigation into the practicability of converting customers' existing galvanized range boilers to automatic electric water heaters was undertaken by the companies of the Niagara Hudson system for the following reasons:

1. Water heating gave promise of an attractive load in an appliance field not previously intensively developed by the companies involved.

2. The existing generation, transmission and distribution facilities were capable of serving additional load.

3. The Hydro-Electric Power Commission of Ontario, early in 1933, began applying conversion water heater equipments to their customers' range boilers. These are supplied practically at no cost, provided the customer agrees to purchase the necessary energy at a flat rate ranging, on the average, from $3.25 to $5.00 per kilowatt per month. According to reports, in excess of 14,000 installations have been made to date. This activity created a demand for similar service on the American side of the border.

4. In view of the fact that electric water heating had practically no acceptance among residence customers (except in one restricted area), and because of present economic conditions, it was felt that a reasonable saturation could not be secured quickly if promotion of the service were restricted to the sale of factory-built equipment by local dealers, even though the price of the service were made competitive. (The companies involved do not merchandise appliances.) A method whereby the customer can try electric water heating in his home and can convince himself of the economy and the satisfactory character of the service without making a substantial commitment for factory-built equipment, seemed indicated.

When the study was initiated, it was known that range boilers could successfully be converted to automatic water heaters served under schedules providing unrestricted 24-hour-per-day service. The experience of the Ontario Hydro and of the far-western American companies had amply proved that point. It was felt, however, that the business should be taken on an off-peak basis if possible, so that the rate established would be low enough to make the service available to the majority of residence customers, would not limit the prospect list to range users, and would permit rapid popularization of the new service.

The competitive fuel situation in Canada and in some of the Northwest Pacific and Rocky Mountain states where heavy saturation of water heaters has been secured, in general was such that

MR. BRAND

this competition proved no bar to the sale of electric heating. In addition, many of the utilities, over a period of years, were faced with the problem of disposing of surplus hydro-electric power. In the territory of the upstate New York companies, however, competition from other fuels is exceedingly keen, high Btu content natural gas being available at 55 cents per M in certain areas and 900 Btu mixed gas in Buffalo at 65 cents per M. Hence, to secure a reasonable share of the business, it was essential that the water-heating rate be established at as low a level as possible, to which off-peak service is the only logical solution for the companies involved. It was found that where heavy saturation of heaters had been secured by other utilities, these, in practically every instance, were developed by use of conversion equipments, a fact which influenced the company's choice to promote the use of such assemblies.

The practices of utilities both in the United States and in Canada, which have had experience in water heating, were thoroughly canvassed. The experience of associated companies in the gas water-heating field was reviewed. Representative manufacturers of factory-built heaters were approached, but, with the exception of one vendor, from whom whole-hearted cooperation was secured, all advised against conversion equipment. The knowledge thus gained was utilized to the fullest extent, and the equipment assembly and practices as finally adopted represent ideas and materials from many sources.

A survey of plumbing supply houses indicated that approximately 75 to 80 per cent of range boilers sold were 30 gallon in size, the remainder being tanks of 40, 52, 66 and 82-gallon capacity. Hence, it was felt that the conversion equipment must be suitable for the entire range, but that the tests should be confined chiefly to 30-gallon tanks.

The following three questions remained to be answered:

1. Will a converted 30-gallon range boiler provide satisfactory hot water service with controlled charging hours (off-peak)?

2. What are the most practicable and the lowest-cost materials consistent with quality to effect the conversion, bearing in mind that the equipment will be company-owned and maintained, and will be leased to the customer?

3. What auxiliaries and related items, such as protective devices, relief valves, heat traps, charging hour control methods, etc., must be considered?

American and Canadian materials readily available in upstate New York were studied, including such items as heating elements, thermostats, thermal insulation, sheet metal tank casings, etc. It was found that the major items of available American equipment either were unsuitable as offered or too high in cost to be considered for the purpose.

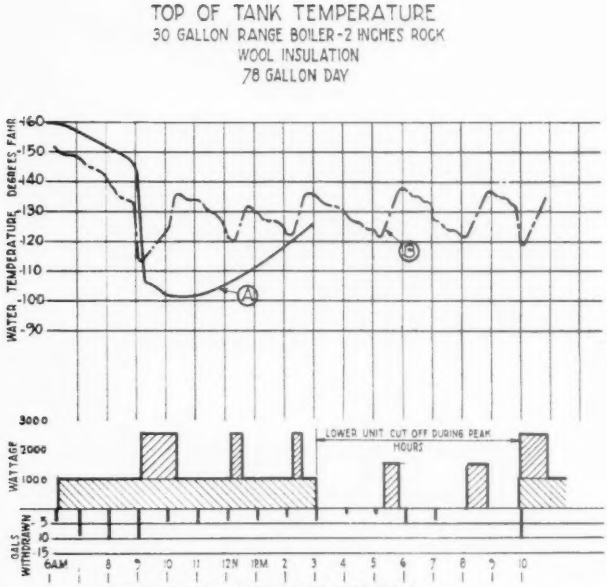
Strap-On Heating Element Selected

A decision to rely on strap-on heating elements was soon made, for the following reasons:

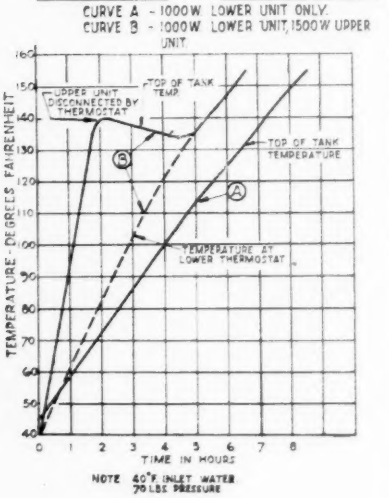
1. The responsibility for conduction of the plumbing and tank could be avoided, if it became unnecessary to put a wrench to tank or plumbing. Experience of associated companies in the gas water heater field indicates that this is highly desirable to avoid customer complaints regarding possible plumbing leaks and failures at a later date.

2. Extensive use by other companies indicated that strap-on heating elements for the purpose in question were more trouble-free than were immersion elements.

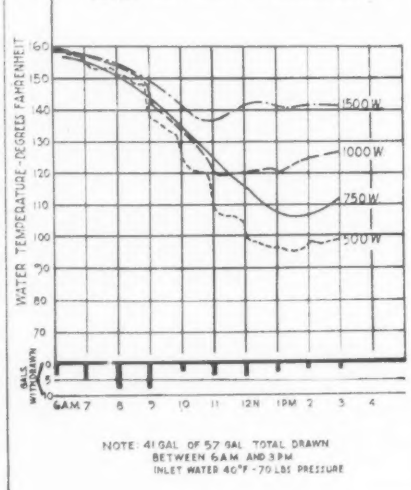
3. A lower surface radiation in watts per square inch could be secured with strap-on units than with immersion. This is highly


TOP OF TANK TEMPERATURE
30 GALLON RANGE BOILER-2 INCHES ROCK WOOL INSULATION
78 GALLON DAY
WATER TEMPERATURE, DEGREES FAHR
WATTAGE
LOWER UNIT CUT OFF DURING PEAK HOURS
GALS WITHDRAWN
6AM 8 9 10 11 12N 1PM 2 3 4 5 6 7 8 9 10
CURVE A - 1000 WATT LOWER UNIT ONLY
CURVE B - 1000 WATT LOWER UNIT- DISCONNECTED DURING PEAK HOURS, 3-10 P.M.
- 1500 WATT UPPER UNIT FLOATING ON LINE
NOTE: LOWER THERMOSTAT SET 155°F.
UPPER THERMOSTAT SET 195°F.
INLET WATER 40°F.-70 LBS. PRESSURE.

Ability of 30-gallon two-unit tank to maintain temperature on day of heavy water draw-offs. Only a few such days per month occur in a household of average size.


COMPARATIVE INITIAL HEATING CURVES
30 GALLON RANGE BOILER-2 INCHES ROCK WOOL INSULATION
BOTTOM UNIT ONLY VS BOTTOM AND TOP UNITS
CURVE A - 1000 W. LOWER UNIT ONLY.
CURVE B - 1000 W. LOWER UNIT, 1500 W UPPER UNIT
TEMPERATURE - DEGREES FAHRENHEIT
UPPER UNIT DISCONNECTED BY THERMOSTAT
TOP OF TANK TEMP.
TOP OF TANK TEMPERATURE
TEMPERATURE AT LOWER THERMOSTAT
TIME IN HOURS
NOTE 40°F. INLET WATER 70 LBS PRESSURE

Advantage of two-unit tank in providing quick initial heating for one-fourth of tank capacity, and quick recovery after tank is drained of hot water. Wattage of upper element does not affect its energy consumption, but governs recovery time.


TOP OF TANK TEMPERATURE
30 GALLON RANGE BOILER-2 INCHES ROCK WOOL INSULATION
LOWER UNIT ONLY -57 GALLON DAY
WATER TEMPERATURE - DEGREES FAHRENHEIT
1500 W
1000 W
750 W
500 W
GALS WITHDRAWN
6AM 7 8 9 10 11 12N 1PM 2 3 4
NOTE: 41 GAL OF 57 GAL TOTAL DRAWN BETWEEN 6 A.M. AND 3 P.M.
INLET WATER 40°F.-70 LBS PRESSURE

Ability of single-unit 30 gallon tank to supply average day's hot water requirements. Need of an auxiliary top unit is indicated for low wattage installations on 24 hr. charging and for all installations on controlled charging hour service.

desirable to reduce scaling and heater burnouts.

4. If the tank is well insulated, the efficiency of strap-on elements is only slightly less than that of immersion units.

5. The first cost of the strap-on element is 15 to 25 per cent below the first cost of the immersion element for the same wattage ratings.

6. Installation and maintenance cost of the strap-on element is less than that of the immersion element.

Circulation type heaters were not considered because of their first cost and the installation plumbing involved.

The heating element finally adopted is of Canadian origin, but built in this country by Hynes and Cox Company, Albany. It is flexible, the same style unit being used for any tank from 30 to 82 gallon in size. Its construction is such that practically the full value of the thermal insulation can be maintained directly over the element. This is a desirable characteristic. It has a soft aluminum shoe which makes possible an intimate contact with the tank surface and an extremely low thermal gradient.

Thermostats Proved Troublesome

The thermostat proved the most troublesome item of equipment. All American types submitted for test were found unsuitable, either because of price, because of the differential in degrees between "on" and "off" temperatures, or for other causes. Several popular units had a differential of approximately 40° F., hence when adjusted to maintain 155° F. tank water, would not close to energize the circuit until the water temperature dropped to 115° F. This will not create difficulty with normal water use in the home, but may cause dissatisfaction if the home-owner is absent for a day or a week-end, no water is being drawn, and the heating element operates only to supply the idling losses. Actually an insulated tank under test equipped with one 1000-watt and one 1500-watt heating element, and connected to the circuit through two such thermostats adjusted to maintain 155° F. water, was found at 118° F. one Monday morning after two days without water withdrawals.

It was felt that in order to provide satisfactory service, the differential should be about 15° F. with a maximum of 20° F. As in the case of the heating element, the unit adopted is of Canadian origin, but built by Cansfield Electrical Works at Niagara Falls, N. Y. A new low-priced unit by Hynes and Cox Company is also in use on an experimental basis. Both are of the bimetallic strip type and are equipped with a thermal heat fuse that melts to open the elec-

trical circuit at a predetermined tank water temperature, approximaely 212° F. The heat fuse thus provides temperature relief ordinarily secured by a relief valve, and saves a plumbing item. It is the only protection being used by the company in the case of "open" piping systems, although on "closed" systems the customer is required to supply a pressure relief valve in addition. (On installations of factory-built heaters, the customer supplies a pressure or pressure and temperature relief valve, or an equivalent device.)

Strap-on thermostats were selected instead of immersion in order to avoid all plumbing responsibility. They are lower in first cost and will be easier to maintain and service than would immersion-type units.

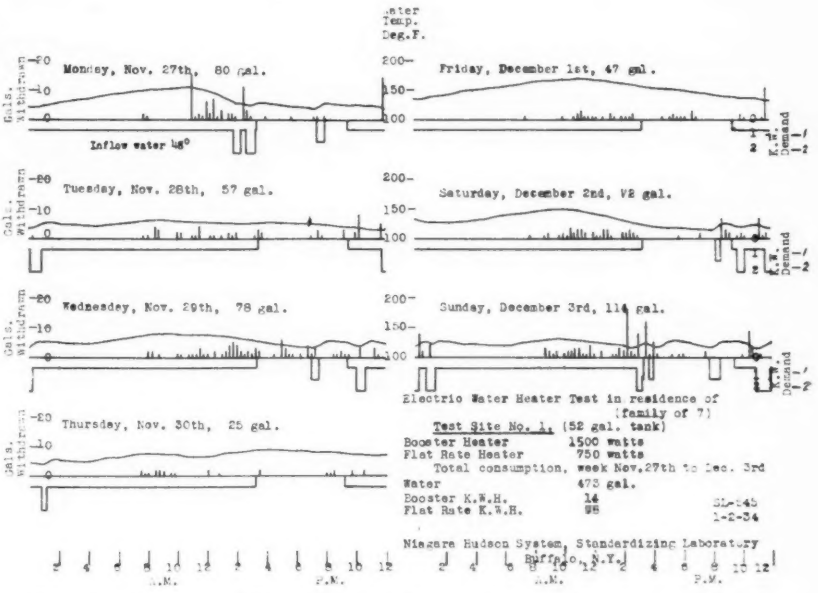
Tanks Are Well Insulated

Thermal insulation was next considered. It was felt that the tank must be thoroughly insulated to prevent excessive losses and to increase the quality of service from the off-peak unit, since under the demand rate contemplated the customer's tendency would be to insist on the lowest possible wattage in order to reduce the monthly charge. Rock wool (not mineral wool) was selected as the best insulating medium, all points considered. Its most objectionable feature as used in the past is that it had to be packed into place by hand—a tedious process, time-consuming, and conducive to irregular results in efficiency of the finished job. Hence several vendors were induced to stitch the rock wool in 2-inch thickness to a heavy kraft paper, to which gummed linen tabs are attached, thus providing a two-piece blanket that can be easily and quickly applied to the tank. Installation labor is reduced considerably and a 15 per cent reduction in standby losses is secured. Several pounds of loose wool are used to insulate the top of the tank.

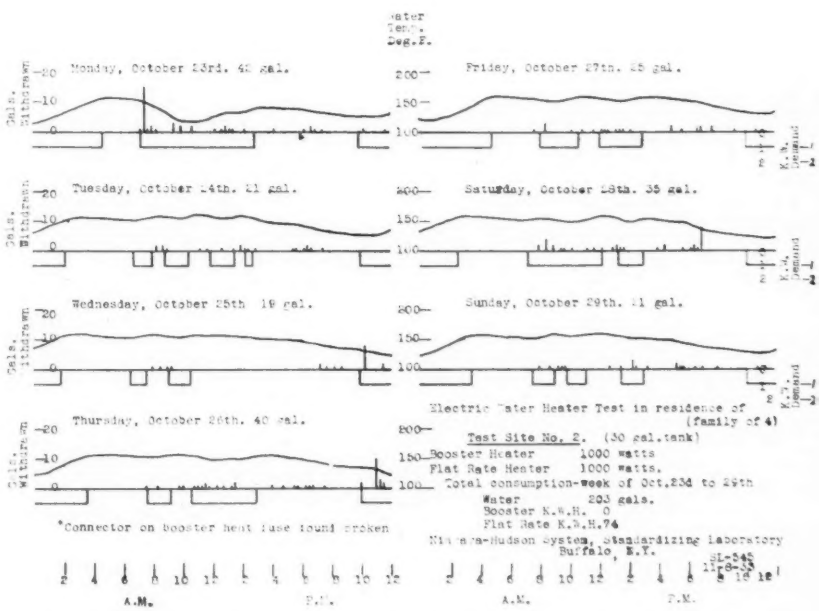
Development of the blanket resulted in a simplification of the sheet metal casing required to hold the insulation permanently in place and to present a finished appearance for the completed assembly. In cooperation with Hynes and Cox Company, an adaptation was made of the casing used by the Ontario Hydro, with improvements tending toward reduction of installation labor and the number of parts required.

Laboratory Tests

While the equipment investigations were in progress, laboratory tests were being conducted with several types of

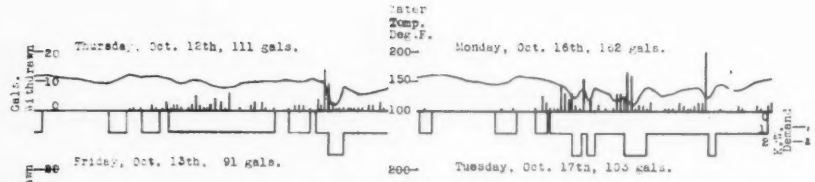

Water Temp. Deg.F.
Monday, Nov. 27th, 80 gal.
Inflow water 48°
Friday, December 1st, 47 gal.
Tuesday, Nov. 28th, 57 gal.
Saturday, December 2nd, 72 gal.
Wednesday, Nov. 29th, 78 gal.
Sunday, December 3rd, 114 gal.
Thursday, Nov. 30th, 25 gal.
Gals. Withdrawn
K.W. Demand
A.M.
P.M.
Electric Water Heater Test in residence of (family of 7)
Test Site No. 1. (52 gal. tank)
Booster Heater 1500 watts
Flat Rate Heater 750 watts
Total consumption, week Nov.27th to Dec. 3rd
Water 473 gal.
Booster K.W.H. 14
Flat Rate K.W.H. 98
SL-245
1-2-34
Niagara Hudson System, Standardizing Laboratory
Buffalo, N.Y.

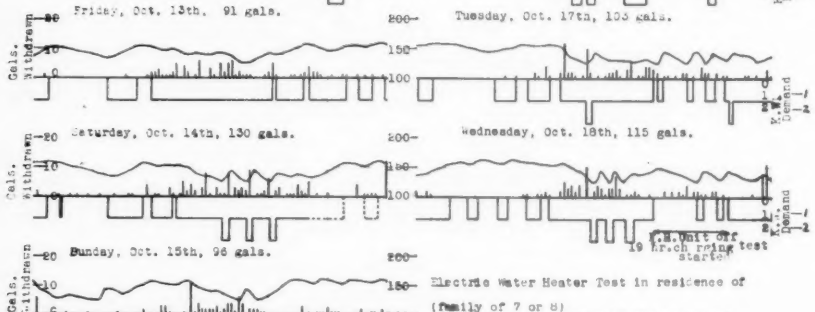
Field Test Site No. 1. Week of Nov. 27-Dec. 3, 1933. Double house, two families totaling 7 users. 52 gallon tank, 2 inches rock wool, 750 watt lower unit, 1500 watt upper unit. 18. hr. charging period on lower unit, upper unit floating on line. Water use 473 gallons. Kwhr.—lower unit 98, upper unit 14. Curve shows water consumption each 15 minutes, top of tank temperature, hours of operation each unit. Customer is perfectly satisfied with temperature of water.


Water Temp. Deg.F.
Monday, October 23rd. 48 gal.
Friday, October 27th. 25 gal.
Tuesday, October 24th. 21 gal.
Saturday, October 28th. 35 gal.
Wednesday, October 25th 19 gal.
Sunday, October 29th. 11 gal.
Thursday, October 26th. 40 gal.
*Connector on Booster heat fuse found broken
Gals. Withdrawn
K.W. Demand
A.M.
P.M.
Electric Water Heater Test in residence of (family of 4)
Test Site No. 2. (30 gal.tank)
Booster Heater 1000 watts
Flat Rate Heater 1000 watts.
Total consumption-week of Oct.23d to 29th
Water 203 gals.
Booster K.W.H. 0
Flat Rate K.W.H.74
Niagara-Hudson System, Standardizing Laboratory
Buffalo, N.Y.
SL-245
12-8-33

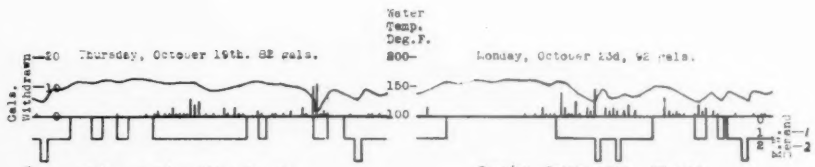
Field Test Site No. 2. Week of Oct. 23-29, 1933. Family of 4. 30 gallon tank, 2 inches rock wool, 1000 watt lower and upper units. 17 hr. charging period on lower unit, upper unit floating on line. Water use 203 gallons. Kwhr.—lower unit 74, upper unit 0. Curve shows water consumption each 15 minutes, top of tank temperature, hours of operation each unit.

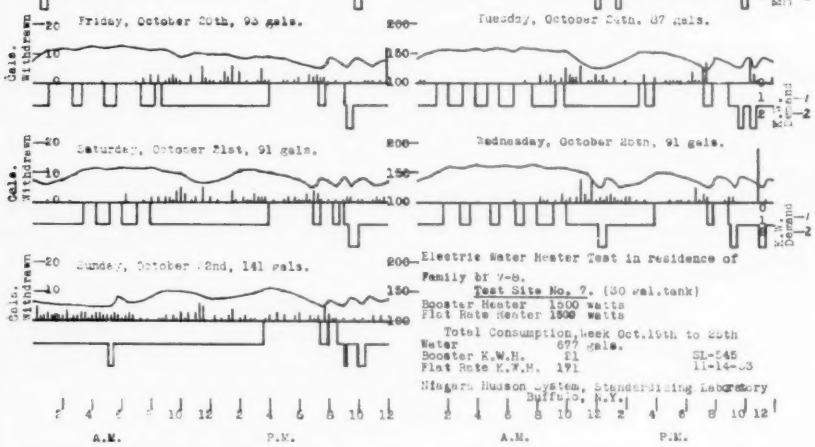
Note: Off-peak unit should be 750 watt to raise load factor.





Field Test Site No. 7. Week of Oct. 12-18, 1933. Family of 7-8. 30 gallon tank, 2 inches rock wool, 1500 watt lower and upper units, 24 hr. charging period, except on 10/18. Water use 808 gallons. Lower unit kwhr.—180. Upper unit kwhr.—20. Curve shows water consumption each 15 minutes, top of tank temperature, hours of operation each unit. Oct. 16 the customer tried out the new installation to see what it would do.




Electric Water Heater Test in residence of
Family of 7-8.
Test Site No. 7. (30 gal.tank)
Booster Heater 1500 watts
Flat Rate Heater 1500 watts
Total Consumption, week Oct.19th to 25th
Water 677 gals.
Booster K.W.H. 21 SL-545
Flat Rate K.W.H. 191 11-14-33
Niagara Hudson System, Standardizing Laboratory
Buffalo, N.Y.
A.M.
P.M.

Field Test Site No. 7. Week of Oct. 19-25, 1933. Family of 7-8. 30 gallon tank, 2 inches rock wool, 1500 watt lower and upper units. 19 hr. charging period on lower unit, upper unit floating on line. Water use 677 gallons. Kwhr.—lower unit 171, upper unit 21. Curve shows water consumption each 14 minutes, top of tank temperature, hours of operation each unit.

heating elements, thermostats, and heat insulation. They consisted chiefly of:

1. Initial heating-up tests, single unit vs. two-unit tanks.
2. Standby loss determinations on thermal insulation.
3. Water draw-off tests to determine ability to supply hot water requirements, both with 24-hour and with 17 or 18-hour daily charging periods.

A 30-gallon boiler was equipped with five thermocouples spaced equally from top to bottom to record water temperatures. Inlet water was held at 40° F., and at 70 lbs. gauge pressure. The draw-off schedules were adapted from the standard N.E.L.A. 50-gallon and 75-gallon set-ups and consisted actually of 57 and 78-gallon days.

Conversion Electric Water Heater Assembly Tests

57-Gallon and 78-Gallon Standard Draw-Off Schedules

Hour of Withdrawal	Gallons Withdrawn 57-Gal. Schedule	Gallons Withdrawn 78-Gal. Schedule
6:00 A.M.	2	4
7:00	6	8
8:00	7	10
9:00	7	10
10:00	3	4
11:00	4	5
12:00 N.	4	4
1:00 P.M.	3	4
2:00	2	3
3:00	2	2
4:00	1	2
5:00	2	3
6:00	3	5
7:00	1	4
8:00	0	0
9:00	0	0
10:00	10	10

It was soon found that two heating elements are highly desirable on tanks intended for 24-hour service and are absolutely essential on a 30-gallon tank with an 18-hour charging schedule.

1. The auxiliary or top unit is required to provide some hot water quickly in case the temperature of the entire tank has dropped below the usable point of 120° F., due to heavy draw-offs, as on wash days. It provides for emergencies.
2. The top unit maintains temperature and supplies the occasional heavy demand when the off-peak unit is disconnected.

The auxiliary element is so located and controlled as to heat not more than 25 per cent of the tank capacity, carrying the temperature from approximately 120° to 135° F. By adjusting its thermostat to 135°, whereas the off-peak unit is set for 155° F. or higher, the duty on the auxiliary element, which is metered on the regular house service meter, is kept low.

Tests conducted as outlined above were run with various combinations of lower and upper elements. They indicated the practicability of converting a

30-gallon tank to an off-peak storage heater with a 17-hour or 18-hour-per-day charging period. The measured standby losses compare very favorably with losses of well-known factory-built heaters tested under identical conditions in the laboratory. Losses in actual operation are somewhat less than standby losses, as the bottom portion of the tank is normally cold.

Auxiliaries and Related Items

Because of temperatures developed in the heater heat outlet boxes and in the thermostat cases, asbestos-insulated conductors were selected for wiring on the tank shell itself. The insulation is color-coded for easy identification of the circuit. A two-conductor assembly with overall braid is now in development to replace the individual conductors originally used, to provide somewhat better protection against mechanical injury during installation. Joints are made with porcelain solderless connectors, since composition-insulated connectors will not withstand the temperatures encountered. Soldered joints, of course, are out of the question.

The circuit between tank and meter board is carried in armored cable. A sealable cabinet containing two 30-ampere fused safety switches is installed on the meter board, the auxiliary element being wired through the top switch, the off-peak element through the lower one.

A time switch is used to control the charging hours of the off-peak element. It is capitalized in the distribution accounts, and is not included as part of the leased equipment.

Other investigations indicated that:

1. The value of heat traps seems to be overestimated. Tests showed them to be of questionable assistance in reducing pipe losses.

2. It is inadvisable to connect furnace coils and other auxiliary heaters with an unregulated heat input directly to insulated tanks because of the possibility of excessive water temperatures (up to 250°-300° F.) with usual city water pressures.

3. Many pressure and combination pressure and temperature relief valves, at best, are erratic in operation. This was intimated in test results from other sources, and confirmed in the laboratory. In most cases temperature relief is of more importance than pressure relief, and on "open" piping systems is the only protective precaution required. The heat fuse was chosen for these installations in preference to a valve, but pressure relief also must be provided on every "closed" piping installation, as the expansion of the water while being heated through 100° F. results in an increase in pressure that must be relieved either by water draw-offs or by an automatic valve. Responsibility for installation and maintenance of this valve is placed with the customer.

4. Other items considered included sealing of the equipment and of access points to the wiring against current diversion, and radio interference tests on thermostats. The latter was not of moment.

Ten Trial Field Installations Made

After the laboratory tests were well under way, ten trial installations were made in employees' homes. The test sites were chosen to provide as wide a diversity as possible among habits of use and quantity of water drawn, also to determine, if possible, the limiting capacity of a 30-gallon tank to supply satisfactory hot water service. The number of persons per family varied from two to eight, with an actual hot water use per

(Continued on page 141)

STEPS IN INSTALLATION OF CONVERSION ASSEMBLIES

Appendix to Mr. Brand's article on Electric Water Heater Equipment Conversion

Fig. 1—The sheet metal casing consists of two side sections with port covers, a supporting base band clamped around the tank, a flat base ring, and a two-piece cover. Heat insulation consists of a two-piece rock wool blanket, with loose rock wool for the top.

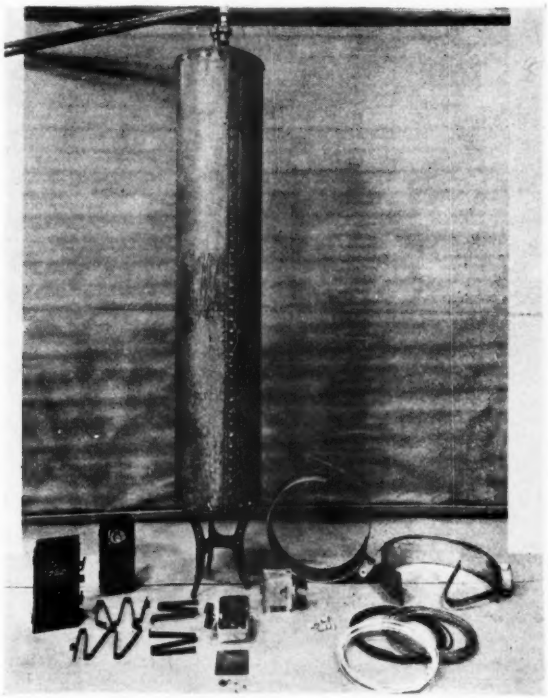


Fig. 2—Two heating elements and two thermostats are strapped to the tank. Asbestos-covered wire is used inside the sheet metal casing. The switch cabinet and time switch are mounted on the meter board.

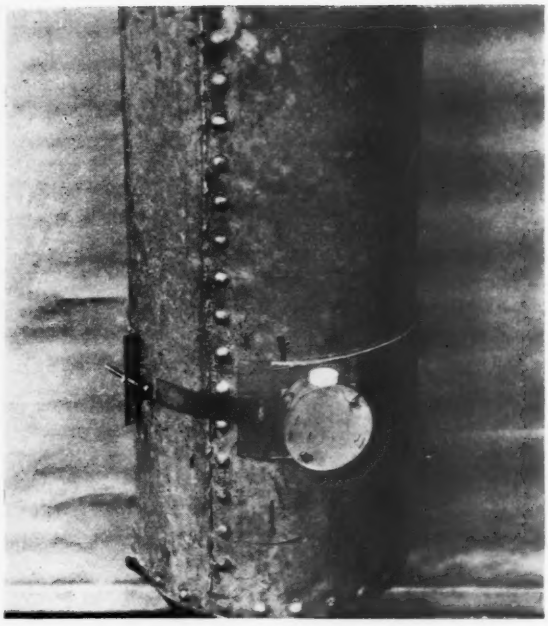


Fig. 3—Clean tank surface of all scale and file down all burrs where heating elements and thermostats are to be attached. Strap lower heating element (off-peak) to tank so the rivet line or vertical welded seam falls in the space where the two ends are bolted together. Cut off excess strap length, pound element with palm of hand to insure close fit to tank surface, and pull strap up tightly. Lower heating element should be mounted directly above the lower spud. In non-standard tanks that do not have a spud 6 inches from the bottom, place center of element 9 inches above tank bottom.

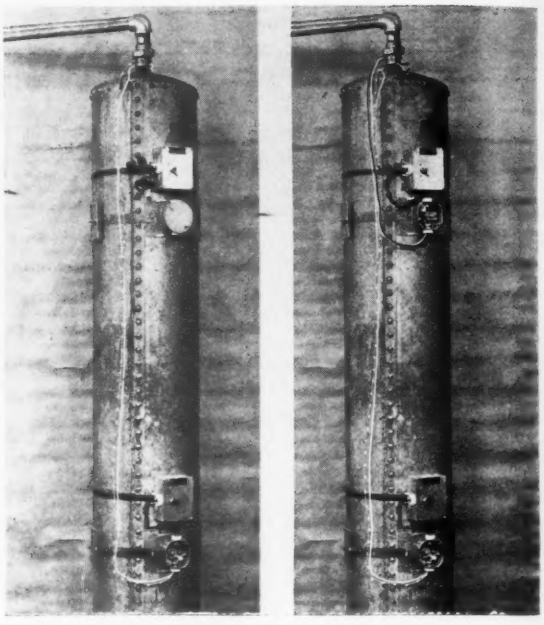


Fig. 4—The thermostat controlling the lower heating element is attached directly above that unit and 15½ inches from tank bottom to center of case. Holes are punched in the strap to fit 30, 40 or 52 gallon tanks. Cut off the excess length when attaching to 30 or 40 gallon tanks, and pull strap up tightly. In like manner attach the upper heating element and thermostat. Make certain that the two heater outlet boxes and the thermostats are in one vertical line. Connect No. 12 A.W.G. asbestos-covered wires to heating elements and thermostats using porcelain solderless connectors. Run red and white wires to lower units, black and white wires to upper units. Temporarily loop the ends.

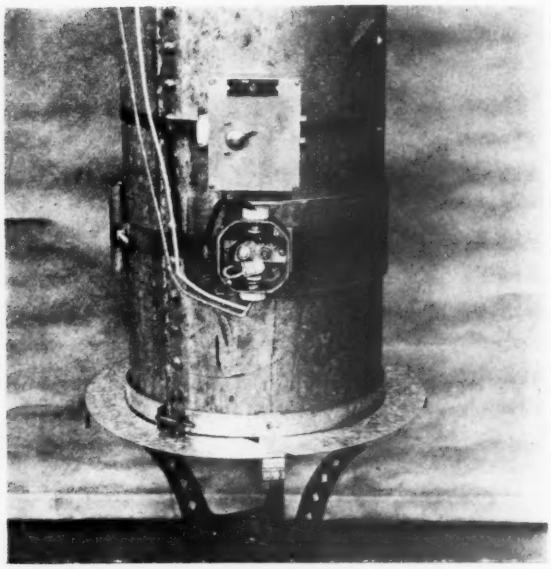


Fig. 5—Tightly clamp the base band to the tank as close to the bottom as the rivets will permit. In rivetless tanks, the bottom of the band should be 1 inch above the lower edge of tank. Lay the flat base ring on the band, and anchor it in place by bending the ends down over one of the horizontal lugs of the band.

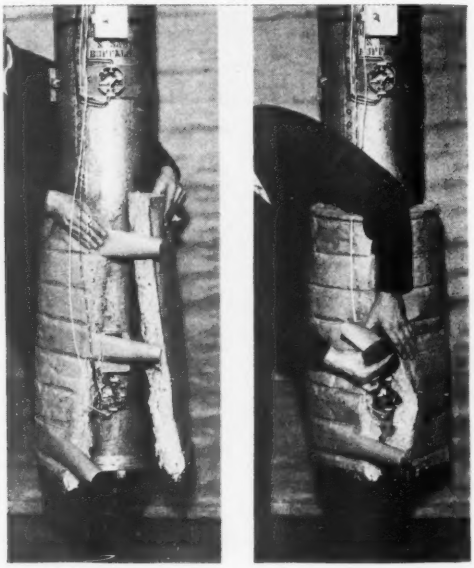


Fig. 6—Do not compress the rock wool in handling the blanket. Keep it dry. Pick up blanket as shown and place lower edge on base ring. Bring vertical edge to which gummed tabs are attached flush against one side of the thermostat and heater head. Bring other edge of blanket around tank until the seam closes above and below thermostat and heater head. Pat blanket with hand until the wool touches the tank all the way around. Moisten the gummed tabs with a damp cloth and glue into place.

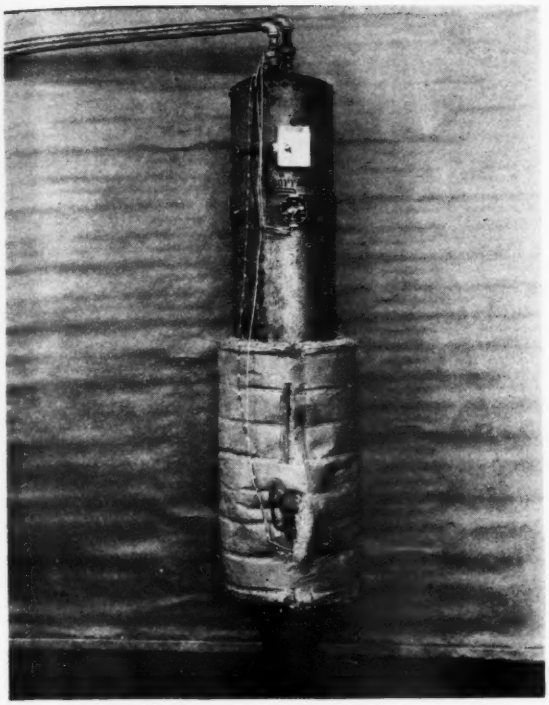
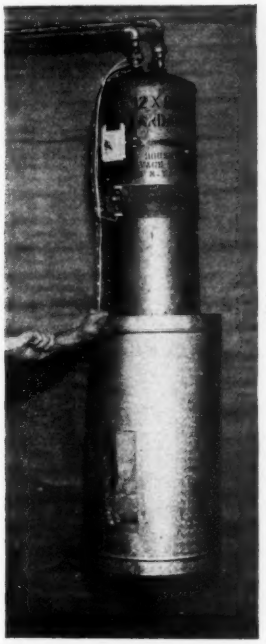


Fig. 7—Note that the previously installed wiring is kept on the outside of the blanket, and away from the tank shell. This is important.



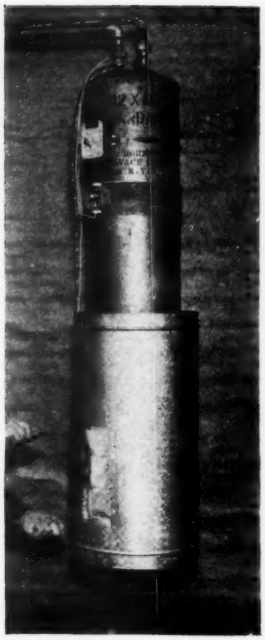


Fig. 8 (Left)—Place lower section of sheet metal casing in position so that heater head and thermostat are centered in the port opening. Bring vertical seam together at top and insert top sheet metal screw. Do not pull screw up too tightly. Keep wiring to left of seam in casing.

Fig. 9 (Right)—Make certain that casing is seated in the slots of the four base band lugs. Pull it together at bottom with a nail through lower screw holes, and fasten with the sheet metal screws. Make certain that wiring is to the left and away from the seam.

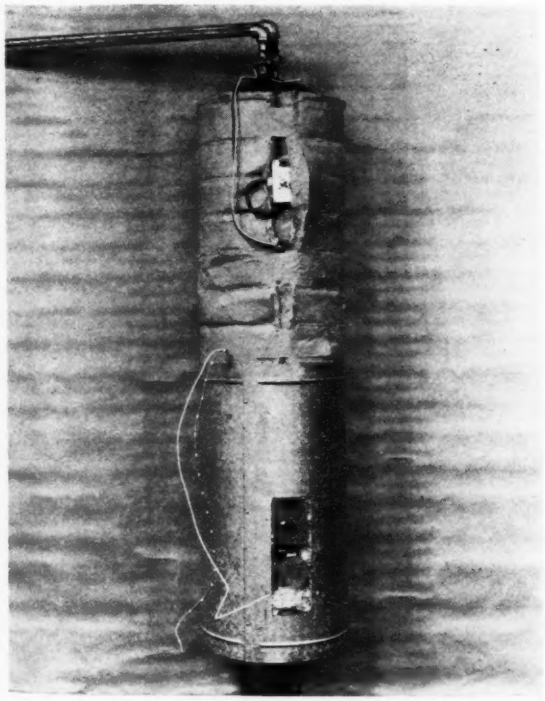
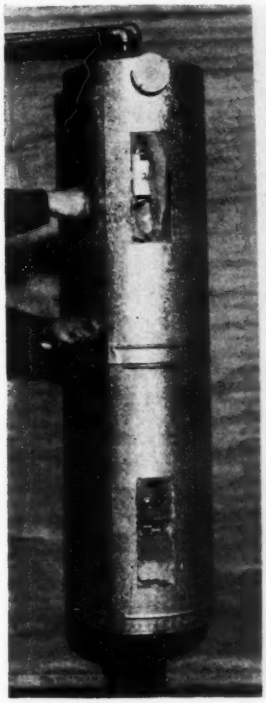


Fig. 10—With a sharp knife cut away the kraft paper and rock wool projecting into the port opening, so that heater head and thermostat are exposed. Pack some of this rock wool (no paper) into the space around and between the heater head and thermostat. In like manner attach upper section of rock wool blanket. Make certain that it is pushed down tightly against the lower blanket, and that the vertical seam is closed. Note location of wiring.



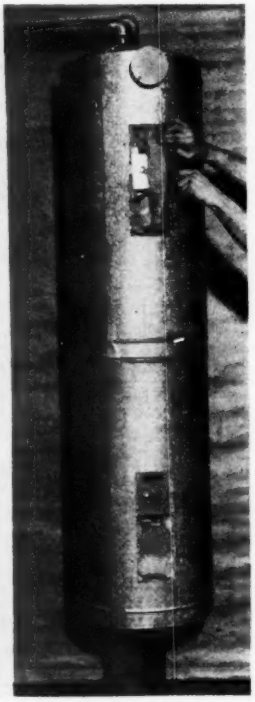


Fig. 11—Install the top section of sheet metal, and cut away surplus paper and wool as before, packing some of the rock wool around heater head and thermostat.

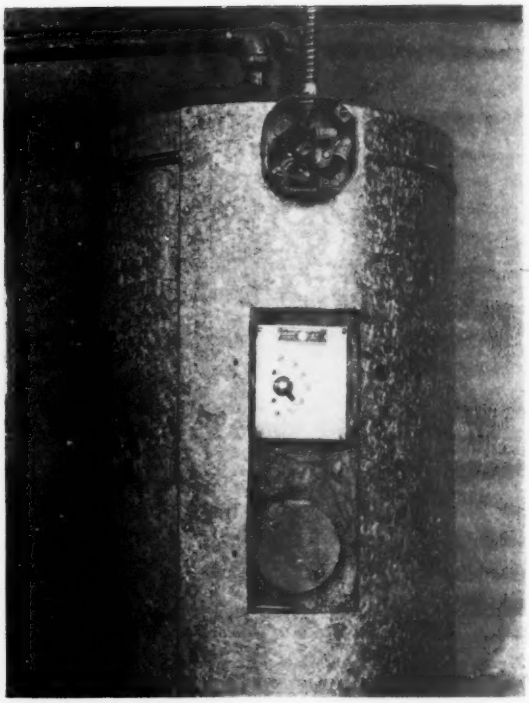


Fig. 12—Bring the asbestos-covered wires into the 4-inch outlet box at top of casing through the Federal bushing in bottom of box. Keep wires next to casing and away from top of tank where they enter the box. The armored cable run from the meter board (either one 3-conductor, or two 2-conductor, depending on whether 3-wire or 2-wire service is available) terminates in the 4-inch outlet box. Make connections using the porcelain solderless connectors.

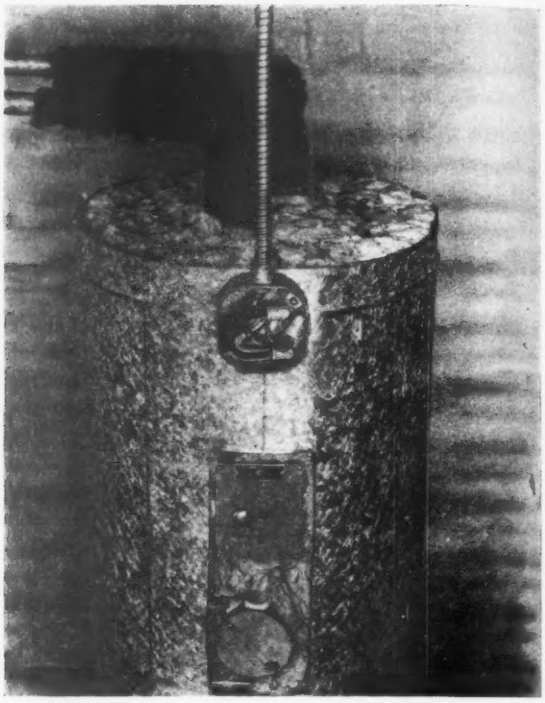


Fig. 13—Wrap oakum or a similar material around hot and cold water lines from top of tank to a point beyond the edge of sheet metal casing, to prevent sweating. Cover the top of the tank with the loose rock wool flush to the top edge of the sheet metal casing. Do not pack the wool tightly or compress it. Place the two-piece sheet metal cover in position. (In handling rock wool wear gloves with gauntlets tied over sleeves.)

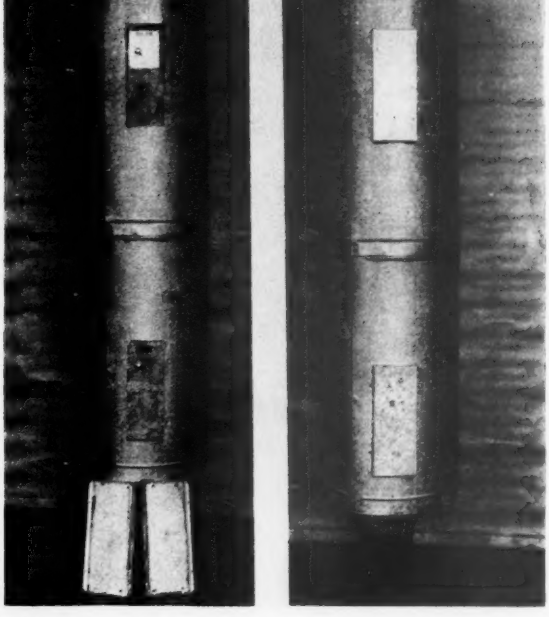


Fig. 14—Set the upper thermostat for 135 deg., the lower for 155 deg. and then attach the port covers using Parker sheet metal screws. Port covers are supplied packed with necessary amount of rock wool.

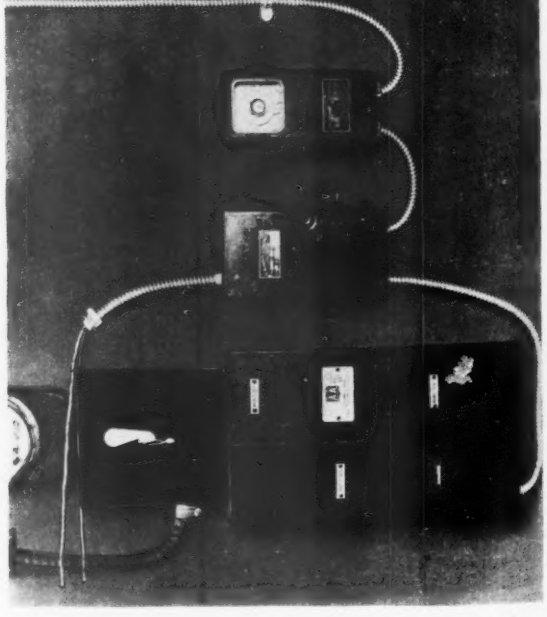


Fig. 15—30 ampere 125 volt double switch box, and time switch supplied by company. These should be mounted on the meter board, as close to the meter switch as possible.

MERCHANDISING ELECTRIC TABLEWARE

By C. E. SWARTZBAUGH

Chairman, Domestic Appliance Section, N.E.M.A.

Presented at the Sales Committee, E. E. I. Conference, Chicago, March 15, 1934

As Chairman of The Domestic Electric Appliance Section of the National Electrical Manufacturers Association, a part of my remarks will be of an official nature, representing I hope the thinking of its members. The other part will be strictly unofficial.

With much of the latter, you will probably disagree, but so far, at least, this is a free country and I will only be expressing my own personal opinions. After all, there is no law against thinking yet. My personal liberty stops just this side of your nose. If it goes beyond that point, it becomes license. I hope to keep within proper limits.

The Domestic Electric Appliance Section of the National Electrical Manufacturers Association, comprising 30 Manufacturers, produces all types and grades of small domestic electric appliances and distributes these appliances through all established channels of trade. With practical unanimity, they have wholeheartedly endorsed, both verbally and financially, the proposed E.E.I.-N.E.M.A. "Small Appliance Program" which was so ably outlined and explained by Mr. DeBard.

Most utility sales promotions in the past few years have been devoted to high current consuming major devices, such as the range, refrigerator and water heater, almost to the exclusion of small appliances. That these major items are essential in your efforts to increase your average "per meter consumption" is readily admitted. But, is it wise in promoting their sale to completely relegate small appliances to the background?

Your unprofitable customer — and they are a substantial percentage of your total—also presents a problem and one which the major appliance, valuable as it is to your overall picture, cannot correct.

Customers, who return to you less than the actual cost of serving them, cannot be considered potential prospects for a major device. They haven't the purchasing power.

But many of these customers can be stepped up to the breakeven or profitable class if they can be sold relatively inexpensive high current consuming devices.

It is that type of appliance the manufacturers I represent here this morning

MR. SWARTZBAUGH

build and expect to help your promote during this Small Appliance Program.

Just as some new social instruments are probably needed to meet changed economic conditions, so also some new viewpoint may perhaps be needed by the Chief Moguls of both the electric utility and manufacturing branches of our industry, to meet yard-sticks of performance set up by the "New Deal." With many of you, we manufacturers concur in the feeling that this is a propitious moment to register the importance of volume sales of small appliances on those executives who finally determine and direct the operations and policies of your companies.

You may, therefore, be assured of the whole-hearted cooperation of the manufacturers in the financing and development of this constructive industry effort which has been so ably conceived and well thought out by your Sales Committee. Our interests are mutual.

The balance of what I have to say is unofficial and forms a purely personal expression of opinion. I have no axe to grind; I am preaching no sermon; attempting no crusade. I submit to you, however, that a personal opinion is something to which we are all entitled. If you don't like what I say, you are privileged to walk out on me. When I left home yesterday, I had a wife and five children, so you know I've been "walked out on" by experts.

According to Dun's statistics, over 90 per cent of all business ventures fail in the first ten years.

Perhaps I am a bit naive and old-fashioned but I have the distinct feeling that a sound foundation for a lasting business must be built primarily on quality products at fair prices.

In the past, utilities have held an "umbrella" over the appliance market. They have sold high grade, quality merchandise which was commensurate with the kind of impression they desired to give their customers. They have established a price consciousness in the market which has permitted other retail dealers to sell large quantities of appliances at a lower price schedule when the opportunity offered.

For almost five years, the price trend on all commodities has been downward. The thing that has crucified so many retailers has not been so much the reduction in the number of transactions as the reduction in the amount of the average sales slip. Forward looking retailers for the past year have been using every effort to "step up" the average sales slip return. In other words, the pendulum is swinging the other way.

Some appliance manufacturers seem to sense a trend toward purely "price merchandise" in utility operations. Why climb on the caboose as the train is pulling into the station? Oh, yes, I admit that T.V.A. is going to sell at low prices. For that matter, chain stores and mail order houses are already doing so. Their type of business gives them certain merchandising advantages which you do not have. On the other hand, you have merchandising advantages with which they can never possibly compete.

May I remind you also that an appliance sold to you in the quantities you are accustomed to buying, and traveling through the regular established intermediate channels of distribution with the service and co-operation you are accustomed to receiving from the manufacturer and these distributing channels, must, of necessity, retail at much more than the chain store price.

I see no reason to be concerned about

either T.V.A. or chain store and mail order competition. I think we should welcome it. None of us can get all the business and you might just as well reconcile yourself right now to the fact that you cannot operate as economically as some other types of distribution. It does not follow, however, that you cannot operate profitably in spite of this competition.

Most things are relatve. In the case of the utility, is it any more difficult to sell a $10 appliance at $1 down and $1 a month with the peculiar facilities available to you and with the unit of sale sufficient to cover the cost of these facilities, or to sell a unit for $1.95 cash with a gross margin perhaps insufficient to cover the sales expense and the paper work which the sale creates? This is an important question—one which you and you alone can decide.

Most complicated problems may be simplified in solution if the question, "Is it right or wrong?" is correctly answered.

Complicated utility problems, it has seemed to me, have often in the past missed proper solution because this question has not been definitely answered. It almost seems that many utility policies today are being made from "fright" rather than on the basis of some sound foundation in fact.

You might just as well kill a man as scare him to death.

Beyond question, past experience definitely indicates that when utilities stop merchandising e v e r y o n e suffers. By everyone, I mean the consumer, the jobber, the retailer and the manufacturer. For only as utilities have aggressively merchandised, has consumer acceptance of electrical products been developed—with beneficial results to all factors in the industry.

With all the money and sales effort which has heretofore been expended in the promotion of electric appliances, the fact remains that today only the electric iron and perhaps the refrigerator have universal consumer acceptance. Appliances are still in their promotional stage. The market has not yet been fully developed.

In the past, the only one who could afford to develop the market was the utility and I see nothing to indicate that this condition has changed.

I have said that some utility policies almost seemed to be the outgrowth of fright. Has the utility industry by any chance reached the stage where every time some individual organization or group, responsible or otherwise, "leads with its left" that utility ducks? Isn't it perhaps time that the utilities stuck out their individual and collective chins and forced a definite answer to the question, "Do we or do we not have the right to merchandise?"

Don't misunderstand me. Surely there must be some reasons other than human cussedness that have put utilities "on the spot." Perhaps they have plenty to live down. For that matter, so have other factors in our economic life,—but if the utility's house is in order; if it is operating on a fair and equitable basis, then why not get the correct answer to the question, "Do we or do we not have the right to merchandise?"

I hope I understand some of the utility problems, and trust that what I say may not be considered as destructive in intent. But from time to time, I have felt that utilities could generate more original and peculiar merchandising ideas than any other business group with which my experience has made me familiar.

If I ever see a stream running up grade between two hills that have no valley in between, or if I ever come in contact with *just two* department stores in any given locality who can sleep together in the same bed without "kicking each other in the slats," then, but not till then, will I be willing to admit the possibility that the contractor dealer, hardware store, specialty shop, department store and utility can all climb into the same bed and sleep together comfortably.

Is something wrong with me or is there perhaps some oddity in utilities permitting themselves to be forced out of the merchandising business and then turning around and acting as purchasing agent, advertising and merchandising counsellor, and in fact, general manager for the very people who had been instrumental in driving them out?

I sometimes wonder if the time will come when the oil companies will pay any substantial part of the advertising and other costs of doing business of the automobile companies in order to promote the automobile industry so more gasoline may be sold.

And, after the utility is out, no one is satisfied.

It seems to me sometimes that utilities fearfully standing with one foot in, and one foot out of the merchandising trough are like the Bridge playing mammy of old Kentucky, who when presented with twins exclaimed, "I knowed all the time that I was vulnerable, but I didn't know I'd been doubled."

No one long continues to respect those who can be abused with impunity. In its merchandising function the utility has been the victim of irresponsible bureaucrats or by others, having a selfish axe to grind. I submit for your consideration that if the utilities believe in their right to sell appliances on a fair merchandising basis—and personally I think they have this right—then it is about time they got up on their hind legs and fought for their rights.

Have they or haven't they the right to merchandise? Under the right set-up, everyone would benefit by the proper answer to this question, irrespective of what the answer was. It would save millions for the industry.

In closing, I have the definite conviction that there exists in this great utility industry some Moses who will correct any existing inequities or unfairness; who will formulate a merchandising policy which commands public respect, and which truly justifies defense against unjust and unreasonable assaults; and who will aggressively combat threats and abuse and efforts at bureaucratic control, either by our elected representatives or their agents, or by irresponsible selfishly actuated individuals, whether these attacks be the result of political self-seeking or ill-advised differences of opinion.

It's time to settle the question of Utility Merchandising once and for all —you are entitled to your honest beliefs —state legislators are not necessarily infallible in their judgments. Even the Administration and its experts have made mistakes, you know. After all, they "pull their pants on one leg at a time," even as you and I.

AMENDMENT TO CONSTITUTION ADOPTED

The following amendment, to provide a new section to Article III of the Constitution of the Edison Electric Institute, was adopted at a special meeting held in New York March 22, 1934:

"Section 6: Until July 1, 1935, the Institute shall elect to membership any Company applicant who is otherwise eligible and who agrees in writing to comply with the provisions of Article IV hereof; and during such period, expulsion from membership shall take place only for violation of Article IV hereof."

The meeting was called by a letter from President Cortelyou sent to all member companies on Feb. 16.

ELECTRICAL DEVELOPMENT DUE TO PRIVATE INITIATIVE

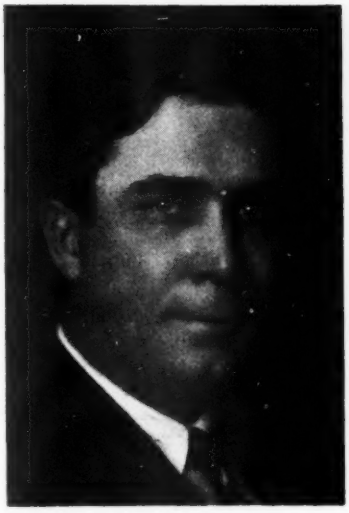
By WENDELL L. WILLKIE
President, The Commonwealth & Southern Corporation

On Jan. 5, 1929, Thomas A. Edison said:

"There is far more danger in public monopoly than there is in private monopoly, for when the Government goes into business it can always shift its losses to the taxpayers. If it goes into the power business it can pretend to sell cheap power and then cover up its losses. The Government never really goes into business, for it never makes ends meet, and that is the first requisite of business. It just mixes a little business with a lot of politics and no one ever gets a chance to find out what is actually going on."

On Sept. 21, 1932, President Franklin D. Roosevelt said:

"I state to you categorically that as a broad general rule the development of utilities should remain, with certain exceptions, a function for private initiative and private capital."



MR. WILLKIE

What Private Initiative Has Done

There are other important aspects to the question of private or public development of electric utilities that may be presented in summary, since they can be covered by no means adequately in so brief a statement.

Private initiative has advanced electricity to its present place in our home and industrial life. Edison completed his first generating plant for supplying electric energy in 1882, when steam was so securely enthroned as the source of power that none could foresee the great electrical development that would revolutionize the life of the people, give new forms of illumination and electrical entertainment, transform industry and greatly alter methods of transport and travel.

Considering past transitions, the electrical development came with remarkable rapidity. Electric power has been made available to the residents of cities, towns and farms, and the industrial requirements of the nation completely supplied. The United States today possesses 50 million horsepower of installed generating capacity and hundreds of thousands of miles of transmission and distribution lines. The electric utility industry has 24 million customers, most of whom are families. They use approximately five million electric refrigerators, 13 million radios, two million electric ranges and myriads of small appliances that tend to relieve the drudgery of household work. A larger percentage of the homes of America are supplied with electric energy than in any other country in the world. The widespread availability of electric power has stimulated research and given new and improved products to the public. Certainly the substitution of public for private operation cannot be advocated on the ground that the latter has failed to give the people of the country service.

Technically Efficient

Private operation of electric utilities has been technically efficient. Maximum power loads are available for instant demand, as well as during the normal period of home and business lighting. "Outages" resulting from electrical or other disturbances have been practically eliminated. The supply of electric energy has been constant and reliable. All of this will be endangered by the establishment of municipal plants and the resultant breaking up of large inter-connected systems.

Private operation of our electric utilities has been economical to the consumer. Between 1913 and 1933 the rate for electric energy declined more than 22 per cent, whereas during the same period the cost of living increased 28 per cent. No other major industry can present such a record of lowered costs to the public. Taking into consideration wage levels and taxes, electric energy is sold at lower rates per kilowatt hour in the United States than in any other country in the world. In the United States the average rate charged by public utility companies is 15 per cent lower than the average rate charged by municipally owned plants. These municipal plants also do not pay taxes.

The electric utility industry has more than five million security holders. Destruction of the value of utility securities, which would be the inevitable consequence of governmental competition, would jeopardize the financial stability of the nation. The financial rehabilitation of the nation would be materially aided by the restoration of confidence in these securities, which can be accomplished by the mere elimination of actual and potential government competition or subsidy.

Concerning "Propaganda"

The essential points in considering the future control of electric utilities have been somewhat obscured by issues which sometimes do not bear pertinently on this main question, or which, while dealing with specific instances, have been presented in such manner as to reflect on the conduct of the industry as a whole.

Criticism has been leveled at utilities on the basis that prior to 1929 they engaged in propaganda activities by the employment of college professors and others to deliver lectures and write and distribute brochures, and that thereby the public mind was perverted to a favorable attitude toward the utilities. It may be assumed that every reader of this article was living during the so-called "propaganda activity," and if each will search his own mind, it is not likely that he will find he was in the slightest degree affected by it. It was probably an unwise activity, but whether wise or unwise, it was wholly ineffective, and it is conceded that utilities are not now engaged in it.

Examples have been cited of certain

*This article has recently appeared in various newspapers throughout the country. It was originally prepared by Mr. Willkie at the request of a prominent news association for distribution to its member newspapers.

outstanding utility operators, some of whom are now residents of foreign climes, who engaged in unsound financial practices. These practices were not practices of the utility industry. It is obviously unfair to condemn an entire industry for the unsound financial practices of a few.

Rates Based on Property Value

It has likewise been claimed that there have been large "write-ups" in some utilities, amounting to 500 million dollars. This sounds like a tremendous figure, but if we should concede it to be true—which I do not—it is just less than 4 per cent on the 13 billion dollars invested in the industry. In other words, it is claimed the owners of the industry thought their property, as an average, was worth 4 per cent more in 1929 than it had cost to construct over the preceding 15 or 20 years.

The reader might consider candidly whether in 1929 he did not believe his own property—whether real estate, stocks, business or other possessions—was worth at least 4 per cent more than it was in 1913. In addition, rates are based on property valuation and are wholly unaffected by so-called "write-up." Commissions can, and have, eliminated all such alleged values from the rate base. . . .

Government regulation is entirely different from government competition. Private competition against the Government is obviously impossible. . . .

The issue is one that should be considered frankly and fairly, free from the prejudice with which it has been surrounded in political agitation. Surely an industry which pays 275 million dollars annually in taxes and employs 250 thousand people is entitled to such consideration.

"In our present reaction, and I think it is not unfair to call it such, there is some demand that the government, which makes the rules and acts as referee, shall take hold of the rope permanently itself. If that step be taken and the government becomes a permanent and effective actor on the rope, then we shall have a new situation in this country. New rules, yes, we should loyally accept them and abide by them; the government as referee, yes, with extended powers, more than we have dreamed of before! but the government as actor, as contestant with its own people, well, Americans will hesitate long, I think, before they permanently cross that great divide."—*Owen D. Young.*

DOMESTIC APPLIANCE LOAD 1920-1933

Last year, for the first time in the history of the electric light and power industry, domestic service showed a decrease from the year before. This reflected the decline in the number of consumers, due to the "doubling up" of families and the falling off in the number of small electric appliances in use. The compensating factor of increased use of radios and refrigerators was not quite sufficient to offset this general retrenchment. Chart 1 shows the total kilowatt hours sold for various domestic purposes since 1920, estimated as well as can be done from the records of appliance sales and from "saturation" figures presented by various authorities. The contribution of the refrigerator in the over-all growth of the business is striking.

Chart 2 distributes the annual totals of the first chart among the different uses year by year and emphasizes the relative displacement of the lighting by the appliance load. Last year about 40 per cent of the energy was used by lamps and 60 per cent by appliances, whereas in 1928 the percentages were reversed and in 1920 barely 20 per cent of the total kilowatt hours were devoted to appliance use.

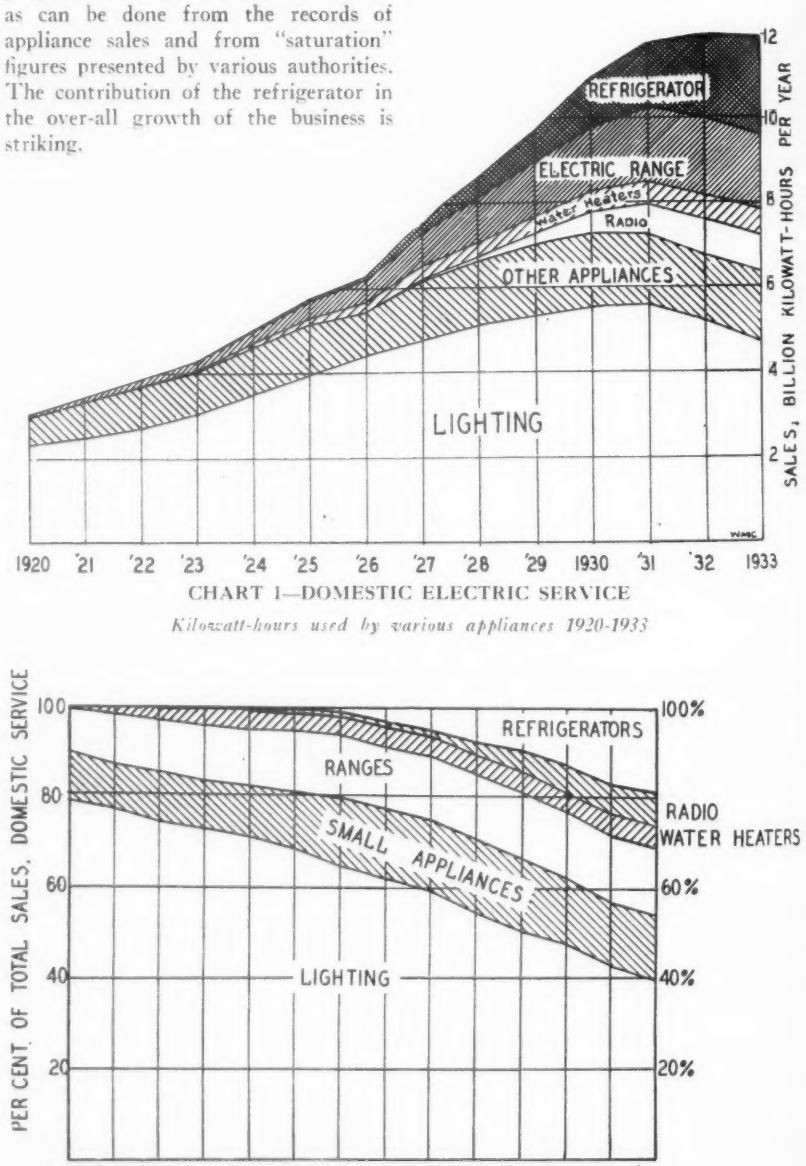


CHART 1—DOMESTIC ELECTRIC SERVICE

Kilowatt-hours used by various appliances 1920-1933

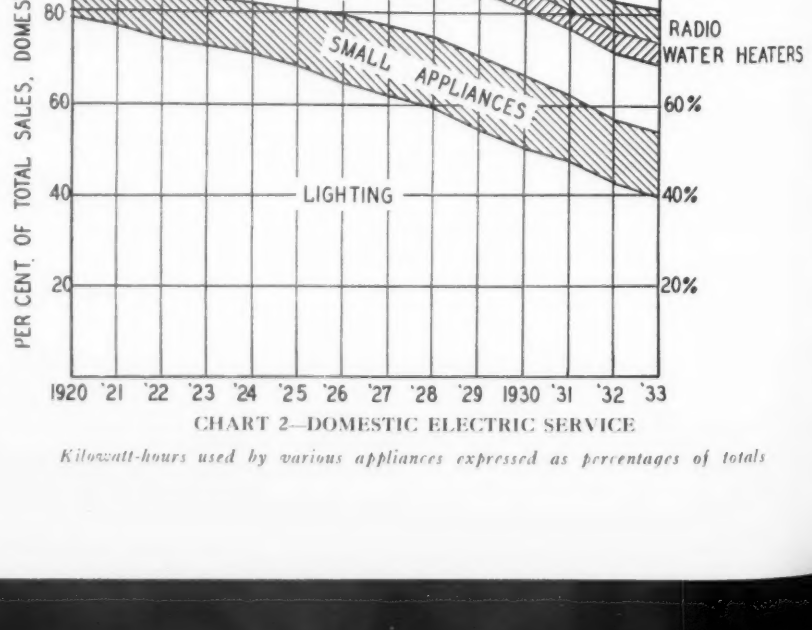


CHART 2—DOMESTIC ELECTRIC SERVICE

Kilowatt-hours used by various appliances expressed as percentages of totals

OPERATING COMMITTEE HOLDS MEETING

Further Expansion of Institute Activities Under Consideration

Ways and means for expansion of Institute activities, with further improvement in services rendered to the industry as the motive, was among the subjects before the Operating Committee, President Cortelyou presiding, at its meeting held on March 21 at the general offices of the Institute.

In this respect all chairmen of Institute Committees were requested to report to the president on desirable expansion of their activities, having due regard for necessary economies and other pertinent matters affecting the efficiency of Institute operations. Consideration was also given to the desirability of affiliation agreements with state and regional utility associations, as well as with local utility associations.

The June Convention of the Institute, to be held at Atlantic City was also discussed by the Committee. Further information on the Convention will be found on another page.

Mr. E. W. Lloyd, chairman of the Century of Progress Central Station Committee, described the plans for the continuation in 1935 of the electrical exhibit at the Chicago Exposition. Mr. Lloyd is endeavoring to raise funds to finance the exhibit, which proved last year to be one of the most popular exhibits at the Fair. Central station companies who underwrote the exhibit last year have been asked to contribute 35 per cent of their 1933 contributions for its maintenance this year.

Edison Metal

Mr. Frank W. Smith, chairman of the Prize Awards Committee, reported on the establishment of the Edison Electric Institute Medal for Resuscitation by the Prone Pressure Method, which had been authorized at a previous meeting of the Operating Committee. An account of the medal is given on another page of this issue.

The proposed N.R.A. Code for the electric light and power industry was discussed by Managing Director Weadock, who reported on the progress being made with it.

Mr. A. H. Kehoe, chairman of the Codes and Standards Subcommittee, reported that his committee had taken action in the matter of approving the establishment of a joint committee between the National Board of Fire Underwriters, the National Electrical Manufacturers Association and the Electric Light and Power Group, to deal with a situation that had arisen involving the National Electrical Code, the standards of the Underwriters' Laboratories and other related matters which required immediate attention. The action of the Codes and Standards Committee was unanimously approved and the formation of the above joint committee was confirmed.

Sales Committee Activities

Mr. George E. Whitwell, chairman of the Sales Committee, reported on the Sales Conference held in Chicago in March and on various commercial activities. The Committee approved the appropriation of funds to finance a Table Cookery Program for the promotion and use of appliances of this character. The program will be conducted along the lines of the Lighting Program adopted in June, 1933. The committee also approved the appropriation of not to exceed $10,000 in support of an extension of the Lighting Campaign undertaken in 1933. It is proposed to organize a council comprising a member from each of the interested bodies, which includes the lamp manufacturers, lamp shade manufacturers, the optometrists, paint manufacturers and the hotel association, to conduct an enlarged program for improvement in lighting. The share of the expense of this program to be borne by the Edison Electric Institute is estimated to be from $5,000 to $10,000.

Upon the recommendation of Mr. Whitwell, the committee authorized the president to appoint a representative of the Edison Electric Institute to confer with a representative who has already been appointed by the American Gas Association to consider and compose differences that have arisen with respect to tests of electric and gas cooking.

The committee also authorized the chairman of the Sales Committee to confer with the electrical manufacturers concerning possible future activities in connection with an All Electric Kitchen program.

Mr. Mark Eldredge, chairman of the Transmission and Distribution Committee, presented to the Operating Committee recommendations for a simplification of the organization that has been functioning in joint relations with the Bell Telephone System, the Western Union Telegraph Company and the American Railway Association. Mr. Eldredge's recommendations were approved. Mr. Eldredge also reported on the activities of his committee and described the method he was following of inviting non-committee members to certain meetings in order to more fully disseminate the practical work of the committee.

Mr. J. H. Lobban, chairman of the Accounting Committee, reported on the activities of his committee. The committee has made a preliminary study of the causes of retirement of central station property and proposes to proceed with further study in this field.

Mr. W. J. Hagenah, chairman of the Statistical Committee, reported on the activities of his committee and concerning the added burden that has been placed on it due to the necessity of accumulating statistical information in connection with the proposed NRA Code. Mr. F. A. Newton, chairman of the Rate Research Committee, also made a report.

Mr. J. A. Johnson, chairman of the Electrical Equipment Committee, reported on the activities of his committee and told of the urgent need for the inclusion of more of the younger men of the industry in such committee activities. Mr. A. D. Bailey, chairman of the Power Generation Committee, reported on the activities of his committee and also spoke of the need for the expansion of its personnel.

Those Present

Members of the Operating Committee present at the meeting were Messrs. George B. Cortelyou, chairman; W. J. Hagenah, A. H. Kehoe, T. A. Kenney, E. W. Lloyd, Edw. Reynolds, Jr., A. H. Schoellkopf, P. S. Young and Bernard F. Weadock; and by invitation, Messrs. A. D. Bailey, M. Eldredge, J. A. Johnson, J. H. Lobban, F. A. Newton, F. W. Smith, G. E. Whitwell, H. S. Bennion and A. Maxwell.

ATLANTIC CITY HOTELS

Rates Quoted for the 1934 Edison Electric Institute Convention

This list of hotels, prepared by the Atlantic City Convention and Publicity Bureau, shows the accommodations and prices of hotels located on the Boardwalk and on intersecting avenues.

Delegates and guests to the convention should make applications for reservations to the hotel of their own choice. It is desirable that applications be made promptly in order to secure reservation at hotel of first choice. Hotels will acknowledge reservations direct to the persons applying for them.

The date and hour of arrival should be given when applying for reservations. The date of departure should also be given, thus releasing accommodations for late arrivals.

Hotels cannot hold reservations made by members and guests who fail to register before 6 p.m. on the day for which they have been reserved, unless the time of arrival is clearly indicated and rooms paid for in event that they are not used. Busses of Atlantic City hotels meet all incoming trains.

Boardwalk Hotels

EUROPEAN PLAN—RATES BY THE DAY

Hotel	No. of Rooms	ROOM—ONE PERSON		ROOM—TWO PERSONS	
		With Bath	Without Bath	With Bath	Without Bath
*Chalfonte-Haddon Hall	1000	$3.00–$6.00	.....	$5.00–$10.00	.....
*Ambassador	650	4.00– 6.00	.....	6.00– 8.00	.....
*Traymore	600	4.00-12.00	$3.00	6.00– 14.00	$4.00
*Marlborough-Blenheim	469	4.00– 9.00	3.00–$5.00	6.00– 12.00	5.00–$7.00
*Dennis	450	4.00– 7.00	3.50– 6.00	6.00– 17.00	5.00– 8.00
Ritz-Carlton	425	4.00– 6.00	.....	6.00– 8.00	.....
*Breakers	400	2.50– 6.00	2.50– 6.00	5.00– 10.00	4.00– 8.00
Claridge	400	4.00– 7.00	.....	6.00– 9.00	.....
Shelburne	300	3.00– 8.00	.....	5.00– 10.00	.....
*Brighton	290	3.00– 6.00	.....	5.00– 9.00	.....
*Knickerbocker	285	3.00– 6.00	.....	5.00– 8.00	.....
*St. Charles	230	4.00– 8.00	.....	5.00– 10.00	.....
*Chelsea	225	3.00– 5.00	2.50	6.00– 9.00	5.00
*President	200	3.00– 5.00	.....	5.00– 8.00	.....
New Belmont	100	2.50– 3.50	2.00– 2.50	4.00– 8.00	3.00– 5.00

Avenue Hotels

EUROPEAN PLAN—RATES BY THE DAY

Hotel	No. of Rooms	ROOM—ONE PERSON		ROOM—TWO PERSONS	
		With Bath	Without Bath	With Bath	Without Bath
*Morton	300	$2.50–$5.00	$2.00–$2.50	$5.00–$8.00	$4.00–$5.00
*Colton Manor	208	3.00– 6.00	2.50	5.00– 9.00	4.00
*Ludy	200	3.00– 5.00	2.50– 3.00	5.00– 8.00	4.50– 6.00
*Madison	200	3.50– 5.00	3.00– 4.00	6.00– 8.00	5.00– 6.00
*Craig Hall	157	2.50– 4.50	1.50– 3.50	3.50– 5.50	2.50– 4.50
*Jefferson	150	3.00– 4.00	2.50– 3.00	5.00– 7.00	4.00– 5.00
Penn-Atlantic	125	3.00– 3.50	2.00– 2.50	4.00– 5.00	3.00– 4.00
Kentucky	110	2.00– 2.50	1.25	3.00– 4.00	2.50
*Glaslyn-Chatham	102	3.50	2.50	5.00	3.50– 4.50
*Arlington	100	2.50– 3.00	1.50– 2.00	4.00– 5.00	3.00– 3.50
*Lafayette	100	3.00– 4.00	2.00– 3.00	4.50– 6.00	4.00– 5.00
*Monticello	100	.....	1.50– 2.50	5.00– 6.00	3.00– 4.00
*Plaza	100	2.50– 3.00	2.00– 2.50	4.00– 5.00	3.00– 4.00
Franklin Inn	90	2.00– 4.00	1.50– 2.00	3.00– 5.00	2.50– 3.00
*Grossman's	85	AMERICAN PLAN	RATES ONLY	ON APPLICATION	
Richfield	73	2.50– 3.50	.....	4.00– 6.00	.....
Cheltenham-Revere	61	2.50	1.00– 1.50	5.00	2.00– 3.00
Mt. Vernon	55	2.50– 3.00	1.25– 2.00	3.00– 5.00	2.00– 3.00
Louvan	32	.....	1.00– 2.00	5.00	2.00– 3.00
*St. James	25	.....	1.50– 2.00	.....	2.00– 4.00

Hotels marked * are also on the American Plan, where meals will be included at an additional charge of $2.50 per day per person, if desired.

YOU ARE INVITED TO ATTEND THE CONVENTION

Discussions Will Deal With Important National Questions Affecting the Industry

The president and officers of the Edison Electric Institute wish to extend through the *Bulletin* a cordial invitation to all officers and employees of member companies to attend the second annual convention of the Institute, to be held at Atlantic City, June 4-7, inclusive. It is hoped that there will be a good attendance of executives, department heads, and others in company organizations who may benefit from attendance at the convention, and contribute to its value by their presence and interchange of experience and information with others interested in the welfare of the industry.

Discussions at the convention will deal with the important national questions at present affecting the electric light and power industry, with means for increasing kilowatt-hour sales and with practical operating subjects.

Four General Sessions

Four general sessions will be held. The first on Tuesday morning, June 5; the second on Wednesday morning, June 6; the third on Wednesday evening at 8.40, and the fourth on Thursday morning, June 7. These four sessions will be open to attendance by all interested in the electric light and power industry, regardless of membership in the Institute.

There will be an executive session on Monday, June 4, at 10 a. m. and again at 2.30 p. m. for member company representatives. Admittance to the executive sessions will be through cards distributed at the registration desk.

The first half of the session on Tuesday morning, June 5, will be devoted to the reports of the president and other officers of the Institute, while the latter half will be built around the subject of economics of electric service. The Wednesday morning session will be under the auspices of the sales committee, whose very successful conference at Chicago, reported in this issue, prepares the way for an unusually stimulating and valuable session at the convention.

On Wednesday evening, June 6, it is planned to have one or more of the industry's outstanding leaders address the convention on subjects of pertinent interest to delegates.

At the final session, Thursday morning, June 7, engineering, operating and general subjects will hold the limelight. At this session also, the award of prizes for successful competition in the several prize events sponsored by the Institute will be made, and the business matters of the convention concluded.

Special Meetings

In addition to the sessions mentioned above, special meetings of the several committees of the Institute will be held during the convention. Details of these meetings will be supplied to committee members in ample time. While the convention program is being rapidly organized, it is not yet sufficiently complete to warrant its publication. The May issue will carry the program in detail, as well as information on the modest entertainment program that is contemplated.

The convention will be held at the Traymore Hotel, where the registration desk, executive offices and meeting halls will be located. The registration booth will be open Sunday afternoon at 2:30 p. m., June 3, and on the following Monday, Tuesday and Wednesday mornings at 9 o'clock.

Reduced Rates

Round-trip reduced railway rates, equal to approximately one-way-and-a-half fares, have been obtained for convention delegates on the identification certificate plan. These rates will be operative from all points in the United States. Identification certificates will be mailed to all member companies about the first week in May. In the event that certificates have not been received by the middle of May, or more are desired, others will be available from the general offices of the Institute.

On the opposite page of this issue is a list of Atlantic City hotels and their rates, as well as other information relating to hotel accommodations and the securing of reservations.

A June Day at Atlantic City

EDISON ELECTRIC INSTITUTE MEDAL FOR RESUSCITATION

Medal Now Established—Application Blanks To Be Mailed Soon

All details relating to the establishment of the Edison Electric Institute Medal for Resuscitation by the Prone Pressure Method have been completed and the recommendations of the prize awards committee concerning its administration were approved by the operating committee on March 21.

Application blanks for the medal are now being printed and will be mailed to member companies within the month. The medal, a drawing of which is shown on this page, will have in its composition copper from the original mains laid down in New York City by the late Thomas Alva Edison. This copper, of historical and sentimental interest to the industry, donated by The New York Edison Company, was part of the first underground distribution system in the world supplying current for electric light and power. It was installed under the personal supervision of Mr. Edison in the lower part of New York City and was known as the "Edison Tube System." A photograph of a small part of a section of mains conductor, with insulation and pipe covering removed, and with sectional jumpers is shown on the next page.

The work of installing this underground system was begun in the summer of the year 1881, the start being made at Peck Slip and Water Street, and was continued through the early part of 1882. Current was first supplied from it on Sept. 4, 1882, from the Pearl Street Generating Station, 255-7 Pearl Street, New York City.

The system was two-wire multiple direct current and was maintained as such until the spring of the year 1890, when work of replacing it with three-wire "Edison Tube" was begun. By 1894 the two-wire system had been almost completely superseded by three-wire, although approximately one-eighth of a mile remained in service until 1902.

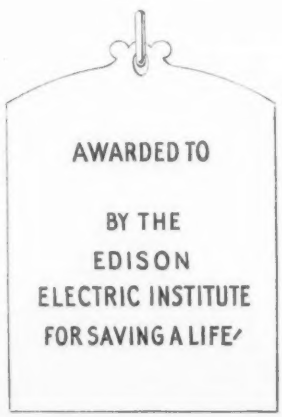
The original two-wire "Edison Tube" system consisted of 10.5 miles of mains and 4.5 miles of feeders. The chief boundaries of the territory supplied from this system were Wall, Spruce, Nassau and Ferry Streets and the East River.

The medal was authorized by the operating committee at a meeting held on Nov. 15, 1933, and is designed for presentation to employees of member companies who, through use of the prone pressure method, have successfully resuscitated individuals from electric shock. Its presentation is intended to serve both as a recognition of the act and to encourage interest in the prone pressure method of resuscitation.

Obverse of Medal
(Enlarged 1½ times)

Under the plans for the award, the medal will be available for successful resuscitation cases occurring on or after Jan. 12, 1933, the date of organization of the Institute, and member companies are urged to make early application to the Institute for all such cases.

Mr. Frank W. Smith, chairman of the prize awards committee, in reporting to the operating committee, announced the appointment of Messrs. C. R. Beardsley, Wills Maclachlan and E. W. Gorry as a committee of judges, with Mr. Gorry as chairman, to pass on applications and administer the award. Miss M. B. Woods of the Institute's general office will serve as secretary to the committee of judges.



Drawing of Reverse of Medal

Applications will be acted upon as received and awards made as soon as possible thereafter. An endeavor will be made to have all awards presented at suitable gatherings, such as conventions, company group meetings, safety rallies, etc., in order that widespread publicity for the award and its object may be obtained. It is planned to announce the initial awards of the Institute medal at the Edison Electric Institute convention in June.

Coincidentally with the endorsement of the report of the prize awards committee, the operating committee approved, in behalf of the Edison Electric Institute, the standard technique of the prone pressure method of resuscitation, as set forth in NELA Publication No. 289-70, pages 1 to 6, inclusive.

The plans for the award of the medal as drafted by the judges, endorsed by the prize awards committee and approved by the operating committee, are as follows:

1. The Edison Electric Institute Medal shall be available for award by the Institute for cases of resuscitation occurring on or after Jan. 12, 1933, and shall be administered by a committee of judges under the Prize Awards Committee.

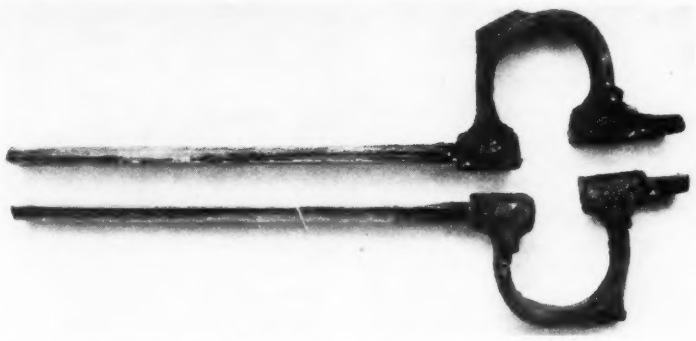
2. The Medal may be awarded to employees of member companies of the Edison Electric Institute for meritorious cases of successful resuscitation from electric shock by the Prone Pressure Method.

3. In the event of the award of another Medal or the application for the award of another Medal for a particular case, the decision as to the awarding of the Edison Electric Institute Medal shall rest with the judges.

4. In the case of an employee who has been awarded the Edison Electric Institute Medal, a Bar to the Medal shall be awarded to the employee for each additional meritorious case of successful resuscitation from electric shock by the Prone Pressure Method.

5. A certificate, describing the accident and service rendered, and signed by the President of the Edison Electric Institute, shall be presented with the Medal or Bar.

6. In cases where a Medal has been awarded, a certificate of assistance describing the accident and service rendered, and signed by the President of the Edison Elec-



HISTORIC COPPER TO BE INCORPORATED IN EDISON ELECTRIC INSTITUTE MEDAL

A small part of a section of mains conductor and sectional jumper originally laid by Thomas A. Edison in first underground installation

tric Institute, may, in the discretion of the judges, be awarded to those who have rendered exceptional assistance.

7. The Award shall be presented by the Chairman of the Prize Awards Committee or his representative.

The conditions governing the award are:

1. After a case of successful resuscitation from electric shock the member company applying for the award, shall as soon as possible, report the case to the Secretary of the Edison Electric Institute. This report shall contain such information as will enable the judges to pass intelligently upon the case and shall be in the form and detail indicated on the application provided for the purpose.

2. No award shall be made for resuscitation by any method other than the Prone Pressure Method, based upon the work of Sir Edward Sharpey Schafer.

3. The application form shall be signed by an executive officer of the employing company. This shall be accompanied by statements of witnesses of the resuscitation, a report of the attending physician and a descriptive account of the accident with causes leading thereto and resuscitation.

4. In cases where the person has been resuscitated and after an appreciable lapse of time succumbs from other causes such as burns or bodily injury, awards will be made the same as though the person had survived.

5. In certain cases of resuscitation more than one person may be eligible for an award if the circumstances are such as to fully justify the award to each applicant. However, the employing company shall in all cases involving more than one applicant, make a careful and thorough investigation and satisfy itself, if possible, as to the one person who is entitled to the award of a Medal and the other or others in whose behalf applications for other forms of recognition might be made.

Where a group of men, such as a line gang, have jointly carried out a case of resuscitation from electric shock, it is often desirable to make the application in the name of the group and award the medal jointly.

6. The decision of the judges in regard to all applications shall be final.

JUDGES APPOINTED FOR PRIZE CONTESTS

A gratifying number of entries for the several prize awards administered by the Edison Electric Institute were received this year. April 1st was the closing date for all entries except for the Hughes Award, which was April 15.

The papers and exhibits are now receiving their preliminary reading. Results of the contests will be announced at the June convention of the Institute.

The judges for the several awards, appointed by the Prize Awards Committee, of which Mr. Frank W. Smith is chairman, are listed herewith.

H. M. BYLLESBY PRIZES

Dean JOHN T. MADDEN, *Chairman,* New York University, Washington Square East, New York City.

B. F. BRAHENEY, Vice President, Byllesby Engineering & Management Corp., 231 South LaSalle St., Chicago, Ill.

WILLIAM PAXTON LITTLE, Niagara Hudson Power Corporation, 15 Broad Street, New York City.

B. C. FORBES PRIZE

P. L. THOMSON, *Chairman,* Director of Public Relations, Western Electric Company, 195 Broadway, New York City.

ROY S. DURSTINE, Batten, Barton, Durstine & Osborne, Inc., 383 Madison Avenue, New York City.

MERLE THORPE, Editor, *Nation's Business,* Washington, D. C.

A. L. LINDEMANN PRIZES

PRESTON S. ARKWRIGHT, *Chairman,* President, Georgia Power Company, Atlanta, Ga.

KATHERINE FISHER, Director, Good Housekeeping Institute, Eighth Avenue and 57th Street, New York City.

EARL WHITEHORNE, Assistant Vice President, McGraw-Hill Publishing Company, 330 West 42nd Street, New York City.

JAMES H. McGRAW PRIZES

JOHN C. PARKER, *Chairman,* President, Brooklyn Edison Company, Inc., 380 Pearl Street, Brooklyn, N. Y.

A. W. BERRESFORD, Managing Director, National Electrical Manufacturer's Assn., 155 East 44th Street, New York City.

L. W. W. MORROW, Editor, *Electrical World,* 380 West 42nd Street, New York City.

THOMAS W. MARTIN AWARD

CHARLES F. STUART, *Chairman,* Assistant to President, Northern States Power Company, Minneapolis, Minn.

PHILIP S. ROSE, Editor, *Country Gentleman,* c/o Curtis Publishing Company, Philadelphia, Pa.

J. S. TRITLE, Vice President, Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

GEORGE A. HUGHES AWARD

MARVIN KNIGHT, *Chairman,* Vice President, J. Walter Thompson Company, 420 Lexington Avenue, New York City.

ELI C. BENNETT, President, Bennett-Watts-Haywood Company, 1836 Euclid Avenue, Cleveland, O.

KENNETH DAMERON, Professor of Marketing, Ohio State University, Columbus, O., c/o National Recovery Administration, Washington, D. C.

CHARLES A. COFFIN AWARD

GEORGE B. CORTELYOU, *Chairman,* President, Edison Electric Institute; President, Consolidated Gas Company of New York, 4 Irving Place, New York City.

KARL TAYLOR COMPTON, President, Massachusetts Institute of Technology, Cambridge, Mass.

FRANK W. SMITH, *Chairman, Prize Awards Committee — Edison Electric Institute;* President, The New York Edison Company, 4 Irving Place, New York City.

ELECTRICAL EQUIPMENT COMMITTEE MEETING

The spring meeting of the Electrical Equipment Committee was held at the Hotel Cleveland, Cleveland, Ohio, on March 28, 1934. The attendance included, in addition to 15 members of the committee, 16 visitors who were interested in the work and discussion of the committee.

Meter and Utilization Equipment

Mr. Silver reported that the subcommittees on Meter Mounting and Energy Diversion had held several meetings and that it has made considerable progress in the development of standards for meter mounting and in improving the method of installing meters so as to lessen the possibility of energy diversion. It is expected that tentative standards for meter mountings will be agreed to within a relatively short time, and that this work will result in great benefit to the industry.

Since the problem of method of service entrance is closely related to the problem of meter mounting and prevention of energy diversion the committee decided to transfer the work on methods of service entrance to the subcommittee on Meter Mounting.

Station and Substation Equipment

Mr. Sutherland presented the table of derating factors for oil circuit breakers which had been agreed upon by the EEI-AEIC-NEMA Joint Committee on Oil Circuit Breakers. In addition to the table of values the committee has agreed upon definitions of terms used. The definitions and derating factors agreed upon are given in the accompanying tabulation.

System Equipment Engineering and Operation

Mr. Johnson reported that EEI-NEMA Joint Committee on Insulation Coordination is making considerable progress in its work to determine (1) insulation levels, (2) specifications for apparatus, (3) application of apparatus and insulation levels to systems. The recently agreed to standard rod gap and impulse voltage flashovers, recently agreed upon, and given on page 140 of this issue of the BULLETIN, form a satisfactory method of measurement for the work of this committee.

A tabulation of system trouble reports was presented, showing the failures of apparatus and equipment which have been experienced by a number of companies since the last report on this subject. The information for this report was obtained from many correspondents in addition to the members of the Electrical Equipment Committee. Mr. Sweetnam, the sponsor for this activity, has corresponded with about 100 engineers to obtain their cooperation in this work. The report, in addition to being sent to all members of the Electrical Equipment Committee, is sent to all engineers who cooperate in obtaining the data.

In addition, progress was reported on Fractional Horsepower Motor Starting Current Limitation, Mercury Arc Rectifiers, Load and Frequency Control, Rapid Reclosing of Circuit Breakers, and Investment studies.

EEI-AEIC-NEMA Joint Committee on Oil Circuit Breakers

Oil Circuit Breaker Preferred Interrupting Ratings

The duty cycle of an oil circuit breaker shall consist of a specified number of unit operations at stated intervals.

Each unit operation shall consist of a closing of the circuit breaker followed immediately by its opening without purposely delayed action.

The standard interrupting rating (standard duty cycle) of an oil circuit breaker shall be based on two unit operations with a fifteen second interval between operations.

Interrupting ratings for other duty cycles shall be as specified in the following table:

Number of Groups	Total number of Unit Operations	Percentage of Standard Interrupting Rating at Currents Specified				
		0 to 5,000 Amp.	5,001 to 10,000 Amp.	10,001 to 20,000 Amp.	20,001 to 40,000 Amp.	Above 40,000 Amp.
		Successive unit operations with 15 second intervals				
—	2	100	100	100	100	100
—	4	95	95	90	85	80
—	8	85	80	70	55	50
—	16	75	65	50	35	—
		Groups of two (2) unit operations with zero* second intervals between operations and 2-minute intervals between groups				
1	2	90	85	75	65	60
2	4	80	75	60	45	—
4	8	70	65	50	35	—
8	16	60	55	40	25	—
		Groups of four (4) unit operations with 0-15-60 second intervals between operations and 2-minute intervals between groups				
1	4	85	80	65	50	—
2	8	75	70	55	40	—
4	16	65	60	45	30	—

*Zero second shall be interpreted to mean no intentional time delay.

Note: It is intended that satisfactory performance of breakers will be obtained under the rating schedule suggested at rates of recovery voltage normally encountered in practice.

Electrical Definitions

The following communication was received from Mr. C. H. Sanderson, member of the Sectional Committee of the ASA on Electrical Definitions, and was presented to all members of the Engineering Committees. It should be of interest to all electrical engineers of the industry.

"The revised and enlarged report C-42 of the American Standards Association on Definitions of Electrical Terms will soon be submitted for approval as an American standard and will be available for general distribution within a few months. This report, a book of some 300 letter size pages containing over 4000 definitions, well arranged and cross-indexed, will constitute by far the most comprehensive dictionary of electrical terms ever issued in any language by a similar group.

"The Sectional Committee which has brought this work to its present state of completion over a period of five years comprises about forty members representing thirty-three organizations, including national engineering, scientific and professional societies, trade associations, government departments and miscellaneous groups. Its seventeen subcommittees with a total personnel of about 120, have called freely upon non-member experts, so that over 300 men in all fields have aided in the work.

"It is particularly desirable that this dictionary have the widest possible distribution and use; for future revisions, as may be required to maintain this work as a live and active standard, must place major dependence upon constructive comments from the greatest possible number of sources.

"Every committee member is therefore urged to further the distribution and use of this dictionary within his own company and in any additional fields which he may be able to cover."

TRANSMISSION AND DISTRIBUTION COMMITTEE MEETING

The meeting of the Transmission and Distribution Committee of the Institute held at the Hotel Cleveland, Cleveland, Ohio, on March 26 and 27, differed from previous meetings in that the first day was devoted to a Round Table Discussion which was open to all those interested. Two sessions of discussion had been arranged, both emphasizing the reduction of costs and operating expenses with improved operation of plant and continuity of service.

The forenoon session of the Round Table Discussion was in charge of Mr. T. H. Haines who led a discussion on wood pole inspection; economies of pole stubbing vs. pole replacement; reclamation of pole line material; comparison of operation of the interconnection of primary lightning arrester grounds and secondary neutral with the usual method of protection; voltage regulation and control; improved methods of restoration of service, and the value of service continuity.

The afternoon session was in charge of Mr. Merrill DeMerit who led a prepared discussion on Design and Construction of Overhead Distribution. Mr. DeMerit opened this session with an interesting "Dissertation on Distribution Engineering and Distribution Costs With an Outline of Some Neglected Fundamentals," which had been distributed in advance, thus permitting prepared discussions which were read and commented upon. The attendance at each of these two sessions was approximately 75.

The meeting on March 27 was for committee members only, and problems and projects were discussed that had been assigned to sponsors at preceding meetings. During this session reports were submitted on the following subjects: Distribution Costs, by S. M. Dean; The Use of Bare Wire for Secondaries, by P. H. Chase and A. E. Silver; Standardization of Primary Fuses and Cutouts, by C. C. Cornelius for A. E. Bettis; U. R. C. Weatherproof Wire Specifications, by D. W. Roper; Interconnection of Lightning Arrester and Secondary Neutral Grounds, by L. G. Smith (submitted by correspondence); Railroad Wire Crossing Specifications and Marking and Lighting of Airways, by P. H. Chase; Foreign Systems Coordination, by A. E. Silver; Non-Leaded Underground Secondary Cable, by L. W. McCullough for H. R. Searing; A-C Low Voltage Network Operation, by C. T. Sinclair. In addition to these, brief reports were made on Outages on Distribution Lines by Messrs. Roper, Haines, Chase and Dean.

During this session of the meeting, Chairman Eldredge announced that definite plans had been made and approved for resuming accident prevention work. Mr. W. A. Buchanan, of Welch, W. Va., a former chairman of the Accident Prevention Committee, has been added to the membership of the Transmission and Distribution Committee to sponsor accident prevention work. Messrs. A. H. Sweetnam and G. G. Post have been appointed from the Electrical Equipment and Power Generation Committees respectively, to work with Mr. Buchanan on accident prevention problems concerning their respective committees. Mr. Buchanan reported that he had partially completed plans for carrying on accident prevention work through requests for the informal cooperation by correspondence of some 8 or 10 other men from various sections of the country who can assist in carrying on the accident prevention work on a national scale. He said that arrangements had been made for the preparation of an article, which will appear in the E.E.I. BULLETIN, bringing the accident prevention statistics up to date and showing trends of frequency and severity rates within the industry since the last data of this kind were published. There is every reason to believe that the accident prevention work will go forward under Mr. Buchanan's efforts in a very satisfactory manner.

Announcement was made that the Operating Committee had recently approved a greatly simplified committee structure for dealing with joint activities with the Western Union Telegraph Company, American Railway Association and the Bell Telephone System.

POWER GENERATION COMMITTEE MEETING

A meeting of the Power Generation Committee was held March 27 and 28, at Cleveland, in connection with the meetings of the Transmission and Distribution, and the Electrical Equipment Committees. The meeting was well attended, practically all of the members being present or represented.

A considerable part of the meeting was devoted to a consideration of reports in preparation; one of these on turbogenerators was approved for publication and will appear shortly. Other reports were presented by Messrs. Ricketts, Elliott, Funk, Gibson and Merriam; after minor editorial changes, these will also be published. These current reports are designed to carry on the useful types of information that have been in great demand by the industry for many years, but will be in a more condensed form.

A round-table discussion was held upon subjects of current interest to power production engineers, and in connection with this a discussion was held upon the question of the enlargement of the committee to procure a more representative basis. This is a subject upon which the Operating Committee had requested the Power Generation Committee, among others, to report with recommendations.

It is planned to hold the next meeting of the committee in June in connection with the annual Convention of the Edison Electric Institute.

NOISE EVALUATION IN INDUCTIVE COORDINATION

At the fall meeting of the Joint Subcommittee on Development and Research, Project 1B presented a report entitled "Articulation Studies on the Effects of Noise," which deals with methods of measuring telephone circuit noise, a method of evaluating the effect of noise and a rule of combination of several component noises. The quantitative determination of the effects of noise on telephone service presents an extremely complicated problem since many of the factors involved are not readily susceptible to measurement. Conversation over a telephone circuit may be rendered more difficult by the presence of circuit noise because it may mask speech sounds, distract the listener's attention and cause annoyance. The magnitude of the effects may be influenced by several variables other than the circuit noise, such as the noise in the room in which the telephone is used,

the talking volume and the reactions of the listener, including the manner in which he uses the telephone. No practical method for evaluating in the laboratory the effects of noise has yet been developed which is known to take into account completely all of these factors. The study described in the report was carried out by means of articulation tests which made it possible to secure a comparative measurement of the masking effect of noise on speech sounds under specified telephone conditions. These comparative results are of value in a study of the effects of noise on telephone transmission.

In an articulation test a caller calls a number of sentences over the circuit under test to a group of observers. In each sentence is a meaningless syllable made up of three letter-sounds. Each observer records the letter-sounds that he thinks are present in each meaningless syllable. The percentage of called letter-sounds correctly received is termed the letter or sound articulation for the particular condition tested. Tests are made with meaningless syllables in order to increase the precision with which a given result can be duplicated and so to permit of testing a large number of conditions within a reasonable period of time.

Since the effect of a given circuit noise depends on the surrounding conditions it was necessary to select representative conditions or ranges of conditions as well as representative circuit noises. On this account Project 1B conducted two surveys —one of circuit noise on some of the more important open-wire toll circuits in the United States, and the other of room noise at telephone locations. Brief summaries of the results of the surveys are given in the report. From these results the types and magnitudes of the circuit noise and room noise for use in the tests were chosen. Hence the results apply more specifically to open-wire circuit noise.

During the investigation noise was measured both by a meter method involving an amplifier, weighting network, and indicating meter, and by an ear balance method, using a source of standard noise, and an adjustable attenuator. Measurements of noise with the meter correlated with the articulation results somewhat better than did the average of the ear balance measurements made by a group of 18 observers. The meter measured as substantially equal the various types of open-wire circuit noises when their magnitudes were such as to produce equal losses in articulation.

In the report the effect of noise in a telephone circuit is expressed in terms of the reduction in the level of speech in the listener's ear which would cause a loss in articulation equal to that produced by the noise. This reduction has been termed the "equated transmission loss" for the noise. The report gives a summary of the values obtained for the various magnitudes of circuit noise and shows how they are affected by the magnitude of room noise and the type of subscriber set. It is pointed out that these values

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EEI-NEMA Joint Committee on Coordination of Insulation

Progress Report of Laboratory Group Approved by The Joint Committee, March 27, 1934—Correlation of Laboratory Data

It has been recognized for some time that the impulse flashover values from the several laboratories were not the same for a given piece of apparatus. In order to reconcile these differences, similar insulator strings were tested in the laboratories of the General Electric, Locke, Ohio Brass and Westinghouse Companies. Also the rod gap as defined by the Joint EEI-NEMA Committee was tested and all the results interchanged. As a result of this work the different laboratories can test within certain tolerance.

Wave Form

The data interchanged between the laboratories was taken with 1 x 5 and 1.5 x 40 waves, positive polarity, the first number denoting the time in m.s. from zero to crest voltage, and the second denoting the time from zero to half value on the tail. The data represents minimum flashover values on the tail of the wave.

Standards and Measurement

The equipment and methods for producing and measuring impulse voltages are different in the several laboratories. Each group has developed its calibration and corrections. The subject of impulse testing measurements is to be given further study by an A.I.E.E. Committee.

Accuracy

The points from which the curves were obtained in any specific laboratory were within plus or minus 5 per cent of the average curve of that laboratory. The average curves of the several laboratories from which the final averages were obtained had a spread of less than 5 per cent. This statement applied to both 1 x 5 and 1.5 x 40 m.s. waves.

Test Results

The average results agreed upon for insulators and rod gaps are given in the adjoining tables. These values, in the opinion of the committee, are of sufficient accuracy to warrant their use for coordination purposes.

IMPULSE VOLTAGE FLASHOVER
POSITIVE WAVE

Suspension Insulators, 10-inch Diameter, 5¾-inch Spacing

Barometer 760 mm., Temp. 25 C., Humidity 6.5 Grains/Cu. Ft.

Data from General Electric, Locke, Ohio Brass and Westinghouse Laboratories averaged.

No. of Units	Minimum Flashover Kv. Values on Tails of Waves 1x5 m.s.	1½x40 m.s.
3	390	355
4	500	440
5	610	525
6	715	610
7	820	695
8	930	780
9	1040	860
10	1145	945
11	1250	1025
12	1355	1105
13	1460	1185
14	1565	1265
15	1670	1345
16	1775	1425
17	1880	1505
18	1985	1585
19	2090	1665
20	2200	1745

IMPULSE VOLTAGE FLASHOVER
POSITIVE WAVE
ROD GAP*

Barometer 760 mm., Temp. 25 C., Humidity 6.5 Grains/Cu. Ft.

Data from General Electric, Locke, Ohio Brass and Westinghouse Laboratories averaged.

Spacing Inches	Minimum Flashover Kv. Values on Tails of Waves 1x5 m.s.	1½x40 m.s.
10**	240	190
20	440	350
30	640	505
40	835	650
50	1035	800
60	1230	945
70	1425	1095
80	1620	1240
90	1815	1385
100	2010	1530

*The rod gap will be defined as one consisting of ½ inch square cornered, square cut rods, coaxially spaced and overhanging their supports at least one half the gap spacing and mounted on conventional insulators giving a height of 1.3 times the gap spacing plus four inches (plus or minus 10% tolerance) above the ground plane.

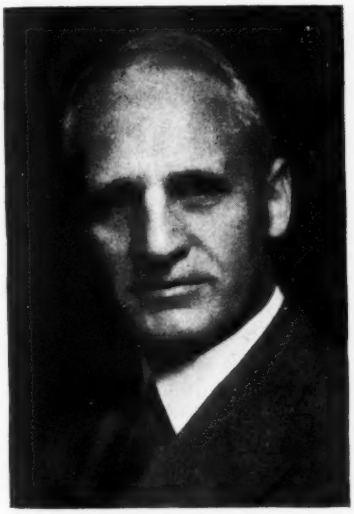
**Values for 15 inch spacing and less may be subject to modification when more data are available.

Southeastern Electric Exchange

The first annual conference of the recently organized Southeastern Electric Exchange was held at the Hotel De-Soto, Savannah, Ga., March 29. The meeting was attended by some 85 or 90 executives of utilities from all over the Southeast, and was a very enthusiastic gathering, with a forward-looking, constructive program, devoted largely to sales promotion.

The Southeastern Electric Exchange is an outgrowth of the old Southeastern Section of the National Electric Light Association. The headquarters of the Exchange are in Atlanta, Ga., in charge of John W. Talley, Executive Secretary.

The conference was presided over by the president, J. W. Hancock. The program included the following papers and addresses: "Importance of Developing the Below Average Residence Consumer," by David M. DeBard, sales manager, Stone & Webster Service Corporation, (discussion led by E. W. Ashmead, sales director, Tennessee Electric Power Company); "How to Develop the Below Average Residence Consumer," by G. T. Dunklin, Westinghouse Electric & Manufacturing Company, discussion led by W. M. Stanley, vice-president, Alabama Power Company; "Competitive Problems in the Sale of Electric Power," by T. L. Bissell, manager, Power Sales Department, Alabama Power Company; "The New Deal in Merchandising of Electrical Appliances," by C. A. Collier, vice-president, Georgia Power Company; "Something New and Unexpected," by Ashton B. Collins, Edison Electric Institute.



JAMES M. BARRY
New president of Southeastern Electric Exchange

Also "The Public Utility Rate Situation and Rate Trends," by Frank A. Newton, chairman E.E.I. Rate Research Committee, Commonwealth and Southern Corporation; "Scientific Certainties and Economic Doubts," by L. A. Hawkins, executive engineer, General Electric Research Laboratories.

James M. Barry, vice-president and general manager, Alabama Power Company, was elected president of the Exchange for the ensuing year.

Northwest Business Development Section Conference

Enthusiasm and optimism toward the business building opportunities in all branches of the electrical business were in evidence at the Ninth Annual Conference of the Business Development Section of the Northwest Electric Light & Power Association at Seattle, Wash., March 8 and 9. R. B. McElroy, The Washington Water Power Company, Spokane, presided as Section chairman.

Emphasis on the importance of commercial men in the industry was laid early in the meeting by L. T. Merwin, vice president and general manager, Northwestern Electric Company, Portland, Ore., president of the Association. L. R. Coffin, Puget Sound Power & Light Company, Seattle, pointed out that rate structures are made by the people who use the service and that the price of power to the public depends more on load factor than on investment in plant.

More interest than usual centered on the possibilities in the commercial and industrial fields covered by the Bureau headed by H. C. McDaniel, Pacific Power & Light Company, The Dallas, Ore. Three committees of this Bureau on cooking, lighting and power presented many practical ways of securing new business and retaining old business through adequate customer contacts.

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Water Heater Conversion

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person per day ranging from 5 gallons to 20 gallons, and monthly use ranging from 500 gallons to 4800 gallons per family.

The following special equipment was installed on each job:

1. Water meter cut into the tank cold water supply.
2. Kilowatt-hour meters on the off-peak and auxiliary elements.
3. A curve-drawing ammeter to record the hours of operation of each heating element.

In addition, the following items were rotated between jobs at approximately two weeks' intervals:

1. A curve-drawing temperature recorder to secure a continuous record of hot water temperature at the top of the tank.
2. A water meter fitted with special contacts and connected to a G.E. Co. "P.D." demand device, to record the water use for each fifteen-minute interval.

The results obtained, in general, were satisfactory and sustained the laboratory test data. Where a shortage of hot water developed during peak hours, it was found due to insufficient tank size; a condition which can be remedied by the customer at an expense small in comparison to the cost of a new factory-built heater of large size. That the idea of larger tanks can be sold is attested to by the first 27 installations made in one area, only 11 of which were made on 30-gallon tanks, the balance being on 40-gallon and 52-gallon tanks installed by the customer. The field tests also indicated the advantage of short pipe runs between the tank and the faucet at which the largest number of hot water draw-offs occur, and proved the necessity of carefully investigating the customer's habits of water use before selecting the sizes of heating elements required or before recommending replacement of an existing storage tank with one of larger capacity.

The cost of the complete two-unit assembly with 1000-watt or 1500-watt heating elements, completely installed on a 30-gallon tank, wired and connected ready to operate, but exclusive of the time switch cost, is approximately $39, including the wiring inspection fee. Equipment for a 52-gallon tank adds approximately $1.60 to the above cost.

A list of publications for sale by the Institute will be sent upon application to Edison Electric Institute, 420 Lexington Ave., New York.

INDUSTRIAL HEATING NEWS

Contributed by Industrial Power & Heating Committee, E.E.I.

SOIL HEATING CABLE

The flexible lead covered cable developed mainly for plant propagation has been found to have many applications in industrial plants and elsewhere. Sixty feet of this cable connected to 110 volt will produce 400 watts and reach a temperature in free air of around 150°. The possible uses of this heating device are too numerous to cover entirely, but a few of them are: heating pipes that carry sluggish chemicals, preventing freezing of water pipes, stock watering troughs, and heating of pipes carrying molasses in feed mills. In winding this cable around pipes it should be remembered that the cable must be wound around the pipe non-inductively.

SOIL STERILIZATION

By placing metallic plates in the soil and energizing them from an electric light line, it has been found that soil can be very effectively sterilized. Considerable work has been done at several of the universities on this subject, and many of the horticultural magazines have carried articles dealing with the application.

STEAM GENERATORS

If you are going after the electric steam generator load, now is the time! This is the time of year when boiler plants are being relieved of their heating load, and in numerous cases they will be operated all summer at a small percentage of their rating to supply steam for just a few small process applications. These conditions are ideal for the use of electric steam generators, and with the manufacturers offering them in all sizes and ratings to fit practically every need, a good business with this equipment should be obtained this year.

UNIT HEATER CATALOGS

Various manufacturers of small heating units have just brought out their new catalogs, all dolled up in Spring style. These new catalogs are much more comprehensive than in the past and contain a great many new types and sizes of units, as well as a considerable amount of engineering information that will be of great help to the power salesman. Get these new catalogs and see what a great sales help they are.

ELECTRIC INK DRYERS FOR PRINTING PRESSES

The printing industry offers one of the largest markets for the small electric heating unit. This field should be thoroughly canvassed and its heating problems carefully studied. Several manufacturers offer a complete line of ink dryers, sheet warmers, and static eliminators.

BEER VAT DRYERS

With the brewery business in full swing, electric heat offers its advantages to this industry in the shape of beer vat dryers. These are electric heaters of about 3 kw each, which will take care of a 50 barrel vat and sell for around $20. Two of these dryers will take care of a 150 barrel vat, and three up to a 350 barrel vat, accomplishing the job in about ten hours.

BANANA AGING ROOMS

Most of the bananas are shipped to this country in the "green" condition and have to be artificially ripened for the trade. This is usually done by the jobber or large distributor by means of banana ripening rooms, which may be anything from a crude cellar to a well insulated room equipped with heating, humidification, and refrigeration. The total electrical load in these rooms runs into a sizeable amount. You will find that some of the electric air heaters now on the market will fit into these installations ideally. "Yes! We have no bananas!"

Refrigerator Sales Set New Record

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Once again, as the peak of the selling season approaches, the people in hundreds of American communities are being reminded of the manifold advantages of electric refrigeration through the medium of the Spring refrigeration show. This activity started in February, received no little acceleration in March and is now in full swing, with cooperative exhibits being held in cities of all sizes, ranging from the largest metropolitan centers down to communities of less than 10,000 population.

As usual, the utilities are doing their full share in the promotion of these cooperative affairs. In the Eastern New York territory, for instance, the New York Power & Light Co., which last year organized Electric Refrigeration Bureaus in eight of its towns, turned over its show rooms for cooperative exhibition purposes with most gratifying results in the way of attendance and sales prospects obtained. Albany, Schenectady, Cohoes, Hudson, Gloversville and Glens Falls were among the cities reporting highly successful shows in the latter part of February.

The Electrical Trade Association of Wilmington, Del., held its annual Spring Electric Refrigeration and Electrical Show in the Hotel Dupont during the last week in March, while at the same time the dealers of Louisville, Ky., with the cooperation of the Louisville *Times* and the *Courier-Journal*, were staging their fifth annual Spring show. Other March exhibits worthy of more than passing mention were those at Portsmouth and Canton, Ohio, both held in the show rooms of Ohio Power Co., and the fourth annual Spring show staged by the Oklahoma Gas & Electric Co. and local distributors and dealers at Oklahoma City.

The Philadelphia Spring show, which is sponsored annually by the Electrical Association of Philadelphia and is just about the biggest affair of its kind in the commercial life of the Quaker City, is scheduled for this month, as is the Buffalo show sponsored by the Electrical League of the Niagara Frontier. Another outstanding exhibit planned for April is the Camden, N. J., show, held as usual under the auspices of the Electrical League of South Jersey, while among other cities where shows will be staged for a full week are South Bend, Ind., Omaha and Sioux City, Ia.

Allison to Open Youngstown Show

The Youngstown, O., Electric Refrigeration Bureau, in conjunction with the local Electric Cookery Council, will hold a Spring Refrigeration and Electric Cookery Show in the auditorium of the Ohio Edison Building during the week of April 16th. Field Manager Allison, of the Electric Refrigeration Bureau, will deliver two addresses on the opening day, afternoon and evening.

POWER SALES ITEMS

AIR CONDITIONING

"Small Motor for Air Conditioning Plant." Heating and Ventilating, February, 1934, p. 32. The Industrial Press, 148 Lafayette Street, New York City, Publishers.

This is a rather technical discussion of starting and running characteristics of the various types of small, single-phase motors which would be suitable for air conditioning plants, particularly in residences. Considerable development has been made on this type motor to take care of the rather constant use to which it is put. The diagrams and curves given in this article should prove rather helpful in designing any particular installation.

BREWERIES

"Utility Service Economy for Brewery Operation—1," by F. W. Boldenweck and Willard M. Woll. Electric Lght and Power, April, 1934, pp. 23-26. Bennett-Watts-Haywood Company, 360 North Michigan Avenue, Chicago, Ill., publishers. "Utility Service Economy for Brewery Operation—2" to appear in future issue.

These papers present some valuable cost data and curves on brewery operation. Some interesting figures are given on the cost per barrel of beer produced in breweries that use purchased electricity and also data on those not fully electrified.

BRICK MAKING

"Electricity in the Brick-Making Industries," by H. V. Henniker, A.M.I.E.E. World Power, March, 1934, pp. 123-128. Editorial and Publishing Offices, 62 Lincoln's Inn Fields, London, W.C.2.

The introduction of electricity has been responsible for considerable advances in the technique of the brick-making industry. The author discusses the general character of the drives and deals with their advantages in the manufacture of bricks.

ELECTRIC FURNACES

"The Electric Melting and Heat Treatment of Iron and Steel." by A. G. Robiette. World Power, March, 1934. Editorial and Publishing Offices, 62 Lincoln's Inn Fields, London, W.C.2.

The aspects of the subject covered in this article are the following: Some notes on modern arc furnaces, the coreless induction furnace, resistor heater furnaces of the batch and continuous types. In the case of resistor heated furnaces particular attention is paid to recent applications.

ELECTRIC MOTORS

"Motor Protection for Severe Conditions," by Paul W. Arnold. Factory Management and Maintenance, March, 1934—Volume 92, Number 3, pp. 128-130. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

Management and maintenance want the kind of service only properly designed motors can give under the severe operating conditions that surround many industrial applications.

"Quiet Operation—The Result of Proper Motor Installations," by George H. Hall. Electrical World, March 3, 1934, Volume 103, Number 9, pp. 335-337. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

This article deals with the proper installation of motor equipment to eliminate objectionable noise and vibration. It is pointed out that present day motors are made practically noiseless but that the proper installation is necessary. The use of silent belts, soundproof enclosures, noise absorbing bases are used to eliminate practically all noises. The article states that the installation of elevator machinery and other motor equipment in buildings makes silent operation a necessity. The same is true of electrical appliances such as refrigerators, oil burner motors, etc., in the home.

"With Built-In Motors Watch Ventilation and Balance," by F. H. Penney. Electrical World, February 24, 1934, Volume 103, Number 8, pp. 293-301. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

This article brings out the necessity of proper ventilation for motors that are built in the various pieces of equipment used in industry. The author points out the necessity of coordination between the machine builder and the motor manufacturer. The matter of vibration and motor balance is designed with the viewpoint of showing the necessity of balancing the motor and rotating assembly.

"Synchronous Motors Beat the Voltage Dips," by K. B. Humphrey. Electrical World, February 17, 1934, Volume 103, Number 7, pp. 251-252. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

This article is taken from a talk before the New York Power Group of the A.I.E.E., by C. R. Zimmerschied. This is a short item of interest to power engineers in that it gives two methods of correcting synchronous motor outages due to dips of momentary duration.

"Ball Bearing Motor Cut Pottery Costs," by Francis A. Westbrook. Electrical World, February 24, 1934, Volume 103, Number 8, pp. 302-303. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

GROUP DRIVES

"Laying Out Group Drives," by Robert W. Drake. Factory Management and Maintenance, March, 1934, Volume 92, Number 3, pp. 131-133. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

Group drives may be too small as well as too large, from the standpoint of power losses. Usually, however, production considerations are of more importance than power losses in determining the most economical size of groups.

INDUSTRIAL ELECTRIFICATION

"Rubberized Fabric Made Electrically." Electrical World, February 24, 1934, Volume 103, Number 8, p. 302. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

LIGHTING

"Workers Are Human Seeing-Machines," by Dr. Matthew Luckiesh. Factory Management and Maintenance, March, 1934, Volume 92, Number 3, pp. 93-96. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

The difference between barely seeing and seeing with maximum ease is wide as the poles. To industry it means the difference between conserving and unnecessarily wasting the nervous energy that is the most valuable possession of every worker.

"How to Survey Your Plant for Better Seeing," by G. A. Van Brunt. Factory Management and Maintenance, March, 1934, Volume 92, Number 3, pp. 106-108. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

The plant that is lighted by guessing at the illumination needed and the amount provided is likely to be poorly lighted, to the detriment of workers and production.

MILLS

"Electrical Features of Modern Cold Roll Strip Mills," by A. F. Kenyon. Iron and Steel Engineer, March, 1934, pp. 113-125. Publishers, Association of Iron and Steel Electrical Engineers; Managing Director, John F. Kelly, Empire Building, Pittsburgh, Pa.

The contributions of the electrical manufacturers in developing motor and control equipment with the necessary special characteristics have aided in the advancement of modern cold roll strip mills. The author thoroughly discusses three distinct types and arrangements of the mill equipment that have been developed and are in use producing cold rolled strip for tinning: Tandem or continuous mills; single stand reversible mills; Steckel type mills.

PHOTO ELECTRIC CONTROL

"Paper-Bag Making Rejects Cut with Photo-Cell Control," by O. C. Cordes. Electrical World, February 17, 1934, Volume 103, Number 7, pp. 248-251. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

This article deals with the application of the Photo-Electric cell for controlling the cutting of paper bags, and goes into detail as to the method of operation. The author also touches on the method of controlling the cutting of paper by brush contacts. The article might be of interest to power sales engineers considering Photo-Electric cell control for similar types of equipment.

POWER FACTOR

"Power-Factor Chart Simplifies Reading," by T. A. Rogers, Electrical World, February 24, 1934, Volume 103, Number 8, pp. 301-302. McGraw-Hill Publishing Company, Inc., 330 West Forty-second Street, New York City.

Noise Evaluation

(Continued from page 140)

of "equated transmission loss" are laboratory results and would need to be subjected to engineering study in connection with practical field conditions before being applicable for general use.

The articulation tests were so conducted as to make possible the determination of an approximate rule to express the way in which the hearing mechanism sums up the effects of component noises. The test results showed that the effect of a combination of noises of the types employed in the investigation is slightly greater than would be computed from the square root of the sum of the squares of the individual components expressed in terms of weighted current or voltage units. However, in view of the favorable correlation between readings of the circuit noise meter (which employed the root-sum-square rule) and articulation obtained with noises of the different types, and the difficulties which would be involved in incorporating a more complicated rule of combination in a meter, it appears doubtful that the use of some other rule of combination than the root-sum-square rule would be justifiable. (This report is available to member companies at 60c per copy. Non-member price $1.50.)

Northwest Conference

(Continued from page 141)

The Rural Sales Bureau under L. C. Moore, Portland General Electric Company, Portland, chairman, presented an exposition of new methods of increasing farm load and doing business with farmers in such a way as to gain their good will.

Discussions under the Residential Sales Bureau conducted by Glenn Jackson, The California Oregon Power Company, Medford, vice-chairman, were of prime interest.

Closely related to the development of residential business were the reports of two special committees, one on dealer relations and one on advertising. The situation as to relations with dealers was shown to be somewhat improved due to the better mutual understanding brought about by closer contact between utility companies and all other outlets during recent years.

Dr. G. W. Allison, National Refrigeration Bureau, stressed the value of coordinated programs of selling as against single shooting at different times by individual units in the industry.

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CONVENTIONS AND MEETINGS

APRIL

19-20 Missouri Association of Public Utilities, The Elms Hotel, Excelsior Springs, Mo.
26-28 Electrochemical Society, Asheville, N. C.

MAY

1-4 Chamber of Commerce of the United States of America, Washington, D. C.
14-18 National Fire Protection Association, Haddon Hall, Atlantic City, N. J.
16-18 American Institute of Electrical Engineers, Worcester, Mass.
24 National Board of Fire Underwriters, Waldorf-Astoria Hotel, New York, N. Y.

JUNE

4-7 Annual Convention, EDISON ELECTRIC INSTITUTE, Traymore Hotel, Atlantic City, N. J.
12-14 Signal Section of the American Railway Association, Hotel Stevens, Chicago, Ill.
18-21 National Association of Purchasing Agents, Hotel Cleveland, Cleveland, Ohio.
25-29 American Institute of Electrical Engineers, The Homestead, Hot Springs, Va.

SEPTEMBER

24-28 American Transit Association, Cleveland Public Auditorium, Cleveland, Ohio.

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